Vol. 1019 Number 3

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

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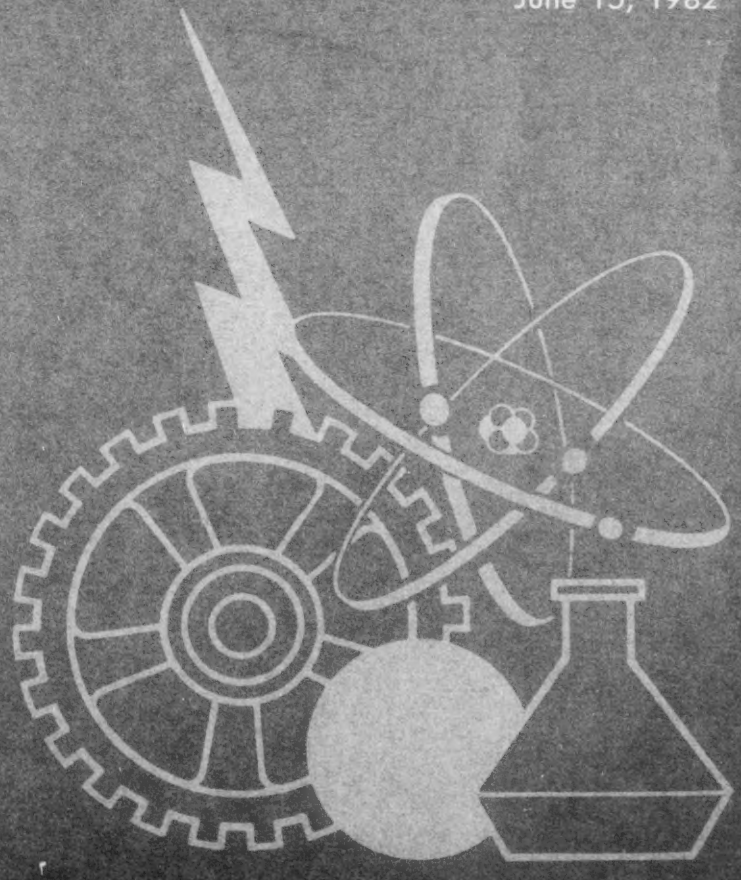

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June 15, 1982 Volume 1019 Number 3

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Jan. 19, 1982. *Commissioner of Patents and Trademarks.*

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,685,787, Re. S.N. 256,707, Filed Aug. 10, 1981, Cl. 251/6, APPARATUS FOR REGULATING FLUID FLOW THROUGH PLASTIC TUBING, Marvin Adelberg, Owner of Record: *Security National Bank, Encino, Calif.,* Attorney or Agent: Edward A. Sokolski, Ex. Gp.: 341

3,998,916, Re. S.N. 315,139, Filed Oct. 26, 1981, Cl. 264/22, METHOD FOR THE MANUFACTURE OF AN ELECTRET FIBROUS FILTER, Jan Van Turnhout, Owner of Record: *Minnesota Mining and Mfg. Co., Rotterdam, Netherlands,* Attorney or Agent: Cruzan Alexander, Ex. Gp.: 147

4,018,677, Re. S.N. 354,064, Filed Mar. 2, 1982, Cl. 210/33, METHOD OF STRIPPING SOLID PARTICLES, Alexander Himsley, Owner of Record: *Himsley Engineering Ltd., Toronto, Ontario, Canada,* Attorney or Agent: W. L. Hayhurst, et al., Ex. Gp.: 176

4,054,793, Re. S.N. 280,845, Filed July 6, 1981, Cl. 362/127, LIGHTING SYSTEM, Sylvan R. Shemitz, Owner of Record: *Sylvan R. Shemitz and Asso., Inc., West Haven, Conn.,* Attorney or Agent: Anthony P. Delio, et al., Ex. Gp.: 221

4,073,426, Re. S.N. 365,080, Filed Apr. 5, 1982, Cl. 228/122, METHOD FOR JOINING AN ANODE TARGET COMPRISING TUNGSTEN TO A GRAPHITE SUBSTRATE, Thomas M. Devine, Jr., Owner of Record: *General Electric Co., Schenectady, N.Y.,* Attorney or Agent: Leo I. Malossi, et al., Ex. Gp.: 322

4,119,879, Re. S.N. 365,078, Filed Apr. 5, 1982, Cl. 313/330, GRAPHITE DISC ASSEMBLY FOR A ROTATING X-RAY ANODE TUBE, Thomas Maurice Devine, Jr., Owner of Record: *General Electric Co., Schenectady, N.Y.,* Attorney or Agent: Leo I. Malossi, et al., Ex. Gp.: 256

4,161,342, Re. S.N. 344,554, Filed Feb. 1, 1982, Cl. 308/6R, ANTI-FRICTION GIBS FOR PRESSES, Roger J. Nelsen, Owner of Record: *Gulf & Western Mfg. Co., Southfield, Mich.,* Attorney or Agent: James H. Tilberry, et al., Ex. Gp.: 243

4,195,669, Re. S.N. 363,648, Filed Mar. 30, 1982, Cl. 138/178, METHOD OF ARRESTING CRACK PROPAGATION IN LINE PIPE CHARACTERIZED BY DUCTILE FRACTURE, Kenneth D. Ives, et al., Owner of Record: *United States Steel Corp., Pittsburgh, Pa.,* Attorney or Agent: James P. Hume, Ex. Gp.: 243

4,196,076, Re. S.N. 363,407, Filed Mar. 30, 1982, Cl. 210/21, SEPARATION OF COBALT AND NICKEL BY SOLVENT EXTRACTION, Akihiro Fujimoto, et al., Owner of Record: *Daihachi Chemical Industry Co.; Ltd., Osaha, Japan,* Attorney or Agent: Herbert B. Keil, Ex. Gp.: 176

4,206,519, Re. S.N. 354,232, Filed Mar. 2, 1982, Cl. 3/27, STABILIZED ARTIFICIAL KNEE MECHANISM, Brian G. Blatchford, Owner of Record: *Charles A. Blatchford & Son, Ltd., Basingstoke, England,* Attorney or Agent: Bryan H. Davidson, Ex. Gp.: 337

4,238,143, Re. S.N. 366,813, Filed Apr. 8, 1982, Cl. 352/72, AUTOFOCUS MOVIE CAMERA HAVING PULSED TERMINAL DRIVE MEANS, Edwin K. Shenk, Owner of Record: *Polaroid Corp., Cambridge, Mass.,* Attorney or Agent: David R. Thornton, Ex. Gp.: 211

4,246,327, Re. S.N. 362,493, Filed Mar. 26, 1982, Cl. 429/105, HIGH ENERGY-DENSITY BATTERY SYSTEM, Paul M. Skarstad, et al., Owner of Record: *Medtronic, Inc., Minneapolis, Minn.,* Attorney or Agent: Everett J. Schroeder, et al., Ex. Gp.: 111

4,289,770, Re. S.N. 350,233, Filed Feb. 19, 1982, Cl. 424/248.54, 2-BENZOYL-4-NITROANILIDES AND THEIR USE AS MEDICAMENTS, Henri Cousses, et al., Owner of Record: *Pierre Fabre S. A., Paris, France,* Attorney or Agent: Gordon W. Hueschen, Ex. Gp.: 125

4,313,464, Re. S.N. 362,111, Filed Mar. 26, 1982, Cl. 137/544, FLUID CONTROL APPARATUS, Emery Major, Owner of Record: *Inventors,* Attorney or Agent: Thomas R. Lampe, Ex. Gp.: 341

4,315,731, Re. S.N. 367,381, Filed Apr. 12, 1982, Cl. 431/254, ELONGATED IGNITING DEVICE, Robert W. Moore, Owner of Record: *Inventor,* Attorney or Agent: William E. Lucas, et al., Ex. Gp.: 345

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b).

3,790,476, Reexam. No. 90/000,197, Requested: May 10, 1982, Cl. 210/374, LATICES FOR INDUSTRIAL WASTE COAGULATION, F. Steven Spoerle, et al., Owner of Record: *Nalco Chemical Co., Oak Brook, Ill.,* Attorney or Agent: John J. Premo, Ex. Gp.: 170, Requester: Lawrence Rosen, New York, N.Y.

4,029,450, Reexam. No. 90/000,200, Requested: May 18, 1982, Cl. 425/71, PLANT FOR VULCANIZING A CONTINUOUS LENGTH OF CURABLE MATERIAL ARTICLES OF ELASTOMERIC MATERIALS, Gustavo Caser, Owner of Record: *Officine Termo-*

meccaniche Succcessori Carello S.p.A., Gaglianico, Italy, Attorney or Agent: Ladas, Parry, Von Gehr, Goldsmith & Deschamps, Ex. Gp.: 147, Requester: George E. Oram, Jr., Washington, D.C.

4,216,767, Reexam. No. 90/000,201, Requested: May 18, 1982, Cl. 128/6.00, ENDOSCOPE WITH CLOSED PRESSURIZED INNER CAVITY, Histake Aoshiro, Owner of Record: *Machida Endoscope Co., Ltd., Tokyo, Japan,* Attorney or Agent: Peter L. Berger, Ex. Gp.: 330, Requester: Victor M. Wigman, Arlington, Va.

4,254,165, Reexam. No. 90/000,198, Requested: May 13, 1982, Cl. 427/183, METHOD OF FORMING A FILLED POLYMER COATING ON AN INTERNAL CYLINDRICAL SURFACE AND ARTICLE PRODUCED THEREBY, Edwin H. Phelps, et al., Owner of Record: *Requester,* Attorney or Agent: Kerkam, Stowell, Kondracki & Clarke, P. C., Ex. Gp.: 162, Requester: American Cast Iron Pipe Co., Birmingham, Ala.

Examination

Pursuant to the provisions of 37 C.F.R. 1.341(c), an examination for persons seeking registration before the United States Patent and Trademark Office as patent attorneys or agents will be held on Tuesday, October 5, 1982.

With the exception of those former patent examiners for whom the examination is waived, all persons recognized for practice before the Patent and Trademark Office in patent cases must pursuant to the noted rule, pass the examination. Those passing the examination do not thereby qualify for recognition for practice before the Patent and Trademark Office in trademark cases. Recognition for practice in trademark cases is governed by Rule 2.12 of the Trademark Rules of Practice, which does not require the passing of an examination.

37 C.F.R. 1.341(f) provides, in pertinent part, "Officers and employees of the United States who are disqualified by statute (18 U.S.C. 203, 205) from practicing as attorneys or agents in proceedings or other matters before Government departments or agencies, may not be registered, * * * but officers or employees whose official duties require the preparation and prosecution of applications for patent may be registered (on compliance with the regulations in this part) or recognized to practice, to the extent necessary to carry out their official duties." If you are an officer or employee of the United States who is not disqualified for registration under 37 CFR 1.341(f) when you apply to take the examination, your application for registration *must* be accompanied by your supervisor's *verified statement* that your official duties as a United States officer or employee require that you prepare and prosecute applications for patent. After passing the examination, you will be considered eligible for registration. If you are disqualified for registration under 37 CFR 1.341(f) when you apply, approval of your application to take the examination will be subject to the following conditions.

1. If you pass the examination, you will not be registered so long as you remain disqualified for registration under 37 CFR 1.341(f). However, if within one (1) year from the date notification of passing is mailed, your status changes and you are no longer disqualified under 37 CFR 1.341(f), you will be considered eligible for registration upon satisfactory proof of your change in status.
2. If you have not become registered within one (1) year from the date notification of passing is mailed, you may not become registered thereafter except upon taking and passing another regularly scheduled examination.

The examination will be given under the supervision of the Office of Personnel Management (formerly Civil Service Commission), and may be taken in any of the cities in which the Office of Personnel Management regularly conducts examinations. Applications to take the examination must be filed in the Patent and Trademark Office together with a $35 fee not later than January 31, 1982.

Application blanks may be obtained from the Clerk of the Committee on Enrollment, Bldg. 3, 11th Floor, Room C16, Crystal Plz., Arlington, Va. or by mail addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, and directed to the attention of the Clerk of the Committee on Enrollment.

DONALD J. QUIGG,
May 18, 1982 *Chairman, Committee on Enrollment.*

Patent Suits

Notices under 35 USC 290; Patent Act of 1952

2,985,648, Beecham Group Ltd., ALPHA-AMINOBENZYLPENICILLINS; **3,157,640,** Bristol-Myers Co., D-(-)-A-AMINOBENZYLPENICILLIN TRIHYDRATE, **filed** Nov. 17, 1981, D.C. District of Columbia (Wash. D.C.), Doc. 81-2769, *Premo Pharmaceutical Laboratories, Inc.* v. *Bristol-Myers Co., et al.* Notice of Dismissal without prejudice filed by plaintiff on Feb. 22, 1982.

3,157,640. (See 2,985,648.)

3,182,952, Mark Controls Corp., BALL VALVES, **filed** Aug. 12, 1981, D.C., W.D. Mich. (Grand Rapids), Doc. G81-629CA1, *Mark Controls Corp.* v. *Conbraco Industries, Inc.* Action transferred to the W.D.N.C. (Charlotte), on Feb. 25, 1982.

3,298,550, Daffin Corp., HAYSTACK TRANSPORTING DEVICE, **filed** Mar. 21, 1980, D.C.N.D. (Fargo), Doc. A3-80-38, *Farmhand, Inc.* v. *Haybuster Mfg., Inc.* Defendant is enjoined from making, having made, using or selling chain-type movers covered by one or more of the claims of Pat. No. 3,298,550. Filed June 5, 1980. **Same, filed** Oct. 3, 1980, D.C. Colo. (Denver), Doc. 80-C-1333, *Farmhand, Inc.* v. *Hawkins Mfg., Inc.* Ordered that action terminated administratively with right to reopen proceedings for good cause. Filed Sept. 14, 1981.

3,330,405, Creative Displays, Inc., COLLAPSIBLE DISPLAY BIN, **filed** Mar. 3, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1276, *Thomson-Leeds Co., Inc.* v. *Creative Displays, Inc.*

3,338,482, Clarence W. Jordan, DISPENSING BOTTLES, **filed** Feb. 5, 1982, D.C., W.D. Okla. (Oklahoma City), Doc. 82-180-E, *Continental Plastics Co.* v. *Clarence W. Jordan.*

3,366,158, Rosenblad Corp., FALLING FILM EVAPORATOR, **filed** Apr. 29, 1980, D.C., S.D.N.Y., Doc. 80 CIVIL 2041 RJW, *Celleco-Rosenblads, Inc., et ano* v. *Rosenblad Corp.* Complaint and counterclaims dismissed without prejudice on Oct. 14, 1981.

3,380,697, Norman J. Melcher, PORTABLE STEPS FOR CLIMBING TREES OR POLES, **filed** Feb. 23, 1982, D.C., M.D.N.C. (Greensboro), Doc. C-82-234-S, *S & S Graham Archery Sales, Inc.* v. *Graham Archery, Inc., et al.*

3,396,542, Construction Techniques, Inc., METHOD AND ARRANGEMENTS FOR PROTECTING SHORELINES; **3,396,545, same,** METHOD OF FORMING CONCRETE BODIES, **filed** Jan. 15, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70180, *Construction Techniques, Inc.* v. *Holloway Construction Co., Inc.* Notice of voluntary dismissal without prejudice filed Feb. 23, 1982.

3,396,545. (See 3,396,542.)

3,446,199, Arthur L. Saveca, SPRING ACTUATED BALL PROJECTING DEVICE, **filed** Aug. 8, 1978, D.C. Minn. (Minneapolis), Doc. 4-78 Civil 328, *K-Tel International, Inc.* v. *Arthur L. Saveca.* Defendant is per-

manently enjoined and restrained from asserting that the K-Tel Batting Trainer Devices manufactured, used and/or sold by plaintiff infringed Pat. No. 3,466,199. Filed Feb. 11, 1982.

3,485,797, Ashland Oil Inc., PHENOLIC RESINS CONTAINING BENZYLIC ETHER LINKAGES AND UNSUBSTITUTED PARA POSITIONS, **filed** Mar. 18, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70966, *Ashland Oil, Inc.* v. *Delta Resins & Refractories, Inc.*

3,507,861, Eli Lilly and Co., CERTAIN 3-METHYL-CEPHALOSPORIN COMPOUNDS, **filed** July 10, 1979, D.C., S.D. Fla. (Ft. Lauderdale), Doc. 79-6411-Civ-NCR, *Eli Lilly and Co.* v. *Generix Drug Corp.* Defendant is permanently enjoined from further infringing Plaintiff's patent. Action dismissed with prejudice and without costs to any party on Feb. 9, 1982.

3,510,391, Grefco, Inc., PERLITE BOARD BONDED TO ORGANIC PLASTIC FOAM, **filed** Aug. 24, 1977, D.C. Del. (Wilmington), Doc. 77-327, *Grefco, Inc.* v. *Kewanee Industries, Inc.* Action dismissed with prejudice on Mar. 2, 1982.

3,560,284, Wisotzky and Peterson, METHOD OF MAKING FOAM-BACKED TUFTED CARPET; **3,695,987, same,** FOAM-BACKED CARPETS, **filed** July 17, 1981, D.C. Del. (Wilmington), Doc. 81-323, *Compo Industries, Inc., et al.* v. *Collins & Aikman Corp.* Plaintiff Compo Industries, Inc. dismissed action without prejudice on Feb. 26, 1982.

3,593,782, Draves, Garrison and Skiba, HEAT EXCHANGER, **filed** Mar. 18, 1982, D.C., N.D. Okla. (Tulsa), Doc. 82-C-334-C, *Bas-tex Corp.* v. *Smithco Engineering, Inc.*

3,659,284, W. T. Rusch, TELEVISION GAMING APPARATUS; **Re. 28,507, same, filed** Jan. 29, 1981, D.C., S.D.N.Y., Doc. 81-Civ-0564, *North American Foreign Trading Corp.* v. *The Magnavox Co., et al.* Plaintiff is permanently enjoined and restrained from infringing Re. 28,507. Filed Sept. 16, 1981.

3,685,217, Belanger, Inc., ROTARY FINISHING WHEEL OR TOOL; **3,807,099, same; 3,820,291, same,** REPLACEABLE HINGE TYPE ABRASIVE UNITS OR PACKS FOR CYLINDRICAL HUB STRUCTURES; **3,846,942, same,** ROTARY FINISHING WHEELS, **filed** Mar. 16, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70926, *Belanger, Inc.* v. *Formax Mfg., Corp.*

3,696,952, Sea-Land Service, Inc., BULK CARGO HANDLING SYSTEM AND METHOD, **filed** Mar. 1, 1982, D.C., S.D.N.Y., Doc. 82-Civ-1180, *Insta-Bulk, Inc.* v. *Tri-Wall Containers.*

3,695,987. (See 3,560,284.)

3,702,484, Aqua Therm Products Corp., LIGHTWEIGHT, MINIMUM-VOLUME WATER PAD, **filed** Feb. 16, 1982, D.C., N.D.N.Y. (Utica), Doc. 82-Civ-161, *Aqua Therm Products Corp.* v. *Akros Mfg., Inc., et al.*

3,736,036, Data Packaging Corp., STORAGE SYSTEM FOR TAPE CASSETTES, **filed** Feb. 12, 1982, D.C. Minn. (St. Paul), Doc. 3-82-137, *Data Packaging Corp.* v. *Hartzell Corp., et al.*

3,766,851, Sun Chemical Corp., CONTINUOUS CAN PRINTER AND HANDLING APPARATUS, **filed** Mar. 18, 1981, D.C., N.D. Ohio (Toledo), Doc. C81-146, *Sun Chemical Corp.* v. *Stroh Container, Inc.* **Same, filed** Dec. 18, 1978, D.C. Colo. (Denver), Doc. 78-M-1318, *Coors Container Co.* v. *Sun Chemical Corp.* Plaintiff's Complaint and Defendant's Counterclaims dismissed with prejudice. Filed Aug. 12, 1981. **Same, filed** Jan. 23, 1981, D.C. Colo. (Denver), Doc. 81-F-87, *Sun Chemical Corp.* v. *Ragsdale Bros., Inc.* Plaintiff's Complaint and Defendant's Counterclaims dismissed with prejudice. Filed Aug. 12, 1981.

3,807,099. (See 3,685,217.)

3,808,895, John Herman Fitzwater, ELECTRIC FAIL-SAFE ACTUATOR, **Re. 30,135, same, filed,** June 26, 1981, D.C., N.D. Ill. (Chicago), Doc. 81C3601, *Ewol, Inc.* v. *Brunswick Corp.* Cause dismissed. Filed Feb. 18, 1982.

3,819,921, Texas Instruments, Inc., MINIATURE ELECTRONIC CALCULATOR; **3,904,862, same** CALCULATOR SYSTEM HAVING A CONSTANT MEMORY; **3,932,846, same** ELECTRONIC CALCULATOR HAVING INTERNAL MEANS FOR TURNING OFF DISPLAY; **4,074,351, same,** VARIABLE FUNCTION PROGRAMMED CALCULATOR; **4,164,037, same,** ELECTRONIC CALCULATOR OR MICROPROCESSOR SYSTEM HAVING COMBINED DATA AND FLAG BIT STORAGE SYSTEM; **4,208,720, same,** CALCULATOR WITH ALGEBRAIC OPERATING SYSTEM, **filed** July 9, 1981, D.C.N.J. (Newark), Doc. 81-2157, *Casio Keisanki Kabushiki Kaisha* v. *Texas Instruments, Inc.*

3,819,921, Texas Instruments, Inc., MINIATURE ELECTRONIC CALCULATOR, **filed** Feb. 17, 1981, D.C., N.D. Tex. (Dallas), Doc. CA-3-81-0238G, *Texas Instruments, Inc.* v. *Casio Keisanki Kabushiki Kaisha, doing business as Casio Computer Co., Ltd.*

3,820,291. (See 3,685,217.)

3,846,942. (See 3,685,217.)

3,884,068, International Measurement & Control Co., LOAD SENSING DEVICE; **4,048,848, same,** LOAD MONITORING SYSTEM; **4,064,055, same** LOAD MONITORING SYSTEM WITH HIGH AND LOW LOAD CONTROL; **4,171,646, same,** LOAD DIFFERENTIAL MONITORING SYSTEM, **filed** Feb. 5, 1982, D.C., N.D. Ill. (Chicago), Doc. 82 C 728, *International Measurement & Control Co.* v. *Production Engineering Co.*

3,895,738, Dataq, Inc., GASOLINE DISPENSING SYSTEM **filed** Sept. 29, 1978, D.C., N.D. Okla. (Tulsa), Doc. 78-C-484-E, *Dataq, Inc.* v. *Tokheim Corp.* Judgment entered in favor of Defendant and against Plaintiff, on Defendant's Counterclaim, and that Pat. No. 3,895,738 is declared by the Court to be void and invalid. Filed Feb. 3, 1982.

3,904,862. (See 3,819,921.)

3,919,516, Ag Fur Industrielle Elektronik, MOTION TRANSLATION MECHANISM FOR THE TOOL DRIVE OF A MACHINING EQUIPMENT; **3,975,608, same,** METHOD AND APPARATUS FOR REGULATING THE GAP DISTANCE IN ELECTRO-EROSION MACHINING, **filed** Mar. 4, 1982, D.C.N.J. (Newark), Doc. 82-675, *System 3R USA, Inc.* v. *Ag Fur Industrielle Elektronik.*

3,932,846. (See 3,819,921.)

3,961,858, Independent Die Association, Inc., COMPOUND ANGLE CUTTING EDGE, **filed** Dec. 12, 1980, D.C., E.D. Mich. (Detroit), Doc. 80-74653, *Independent Die Association, Inc.* v. *Ford Motor Co.* Case reassigned to different judge. New case number is 80-40449. Filed Jan. 19, 1982.

3,969,079, Warner-Lambert Co., DUAL CHANNEL PHOTO-OPTICAL CLOT DETECTION APPARATUS, **filed** Aug. 31, 1979, D.C.N.J. (Newark), Doc. 79-2653, *Warner-Lambert Co.* v. *Curtin Matheson Scientific, Inc.* Stipulation and Order dismissing Plaintiff's Complaint and Defendant's Counterclaims filed Mar. 8, 1982.

3,973,282, Marvin I. May, WATER BED LINER HOLDER, **filed** Feb. 19, 1982, D.C., W.D. Mo. (Kansas City), Doc. 82-0120-CV-W-7, *Tite Nites, Inc., et al.* v. *M. D. Wheat, Inc., doing business as E-Z Sleep Waterbeds, et al.*

3,975,608. (See 3,919,516.)

4,008,552, Lawrence F. Biebuyck, WALL STRUCTURE AND ELEMENTS THEREFOR, filed Mar.19, 1982, D.C., N.D. Tex. (Dallas), Doc. 3-82-0426G, *Howmet Aluminum Corp.* v. *U.S. Aluminum Corp.*

4,048,848. (See 3,884,068.)

4,062,055. (See 3,884,068.)

4,073,296, Francis J. McCall, APPARATUS FOR ACUPRESSURE TREATMENT, filed Mar. 15, 1982, D.C., S.D. Fla. (Miami), Doc. 82-502-Civ-WMH, *Acu Form Weight Control Centers, Inc. and Francis J. McCall* v. *Acu-Thin Weight Control Centers of Ga., Inc., et al.*

4,074,351. (See 3,819,921.)

4,081,879, Chemcast Corp., SEALING MEMBER, filed Mar. 15, 1982, D.C., E.D. Mich. (Detroit), Doc. 82-70902, *Chemcast Corp.* v. *Arco Industries Corp.*

4,096,484, Edo Western Corp., GRAPHIC RECORDING SYSTEM, filed Nov. 24, 1980, D.C. Mass. (Boston), Doc. 80 2621, *Edo Western Corp.* v. *EPC Laboratories, Inc.*

4,132,181, Smith, Davis and Heiniger, FERTILIZER APPLYING KNIFE ASSEMBLY; **D. 252,506,** Charles J. Clark, WEAR POINT FOR AGRICULTURAL FERTILIZER SHANK; **D. 252,574,** Charles J. Clark, WEAR POINT FOR AGRICULTURAL FERTILIZER SHANK, filed Feb. 5, 1982, D.C., W.D. Okla. (Oklahoma City), Doc. 82-179-T, *Adams Hard-Facing Co.* v. *Ace Service Corp.*

4,144,733, Billy L. Whitten, PIPE GROOVING APPARATUS, filed Mar. 11, 1981, D.C., N.D. Ga. (Rome), Doc. 81-72R, *Billy L. Whitten* v. *Douglas Cordle, et al.* Plaintiff's Pat. No. 4,144,733 is valid. Defendant's are permanently enjoined and restrained from further infringing Plaintiff's patent. Filed Feb. 17, 1982.

4,164,037. (See 3,819,921.)

4,171,013, Robert C. Clark, RETRACTABLE AWNING ASSEMBLY, filed Sept. 30, 1981, D.C. Colo. (Denver), Doc. 81-C1721, *Scott & Fetzer Corp., doing business as Carefree of Colorado Div.* v. *A & E Systems, Inc., et al.* Order dismissed without prejudice on Feb. 2, 1982.

4,171,646. (See 3,884,068.)

4,173,314, Cary Metal Products, Inc., CONTINUOUS WEB SUPPLY APPARATUS, filed Mar. 10, 1982, D.C., N.D. Ill. (Chicago), Doc. 82C1511, *Cary Metal Products, Inc.* v. *Enkel Corp.*

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D. 262,143. (See D. 261,439.)

D. 262,144. (See D. 261,439.)

Errata

In the Official Gazette of Jan. 25, 1977 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 420, "903,211. EBCOA. U.S. Cl. 101" should be deleted.

In the Official Gazette of Dec. 16, 1980 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 128, "986,917. N-30. (U.S. Cl. 34). Reg. 6-25-74" should be deleted.

In the Official Gazette of Mar. 17, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 365, "974,508. BUTZCHOQUIN. (U.S. Cl. 8). Reg. 12-11-73" should be deleted.

In the Official Gazette of May 12, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 298, "1,000,043. CAPTAIN ALEXANDERS MOONRAKER. (U.S. Cl. 100). Reg. 12-17-74" should be deleted.

In the Official Gazette of Aug. 4, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 142, "1,006,187. KIWI. (Int. Cl. 2). Reg. 3-11-75" should be deleted.

In the Official Gazette of Oct. 6, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 156, "1,010,546. RHEINKRONE. (Int. Cl. 33). Reg. 5-13-75" should be deleted.

In the Official Gazette of Oct. 20, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 476, "1,010,177. GOFF. (U.S. Cl. 46). Reg. 5-27-75" should be deleted.

In the Official Gazette of Oct. 13, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 321, "1,011,061. CRYSTAL PLUS AND DESIGN. (Int. Cl. 25). Reg. 5-20-75" should be deleted.

In the Official Gazette of Nov. 3, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 164, "1,013,116. HAYMATES AND DESIGN. (U.S. Cl. 1). Reg. 6-10-75" should be deleted.

In the Official Gazette of Nov. 3, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 164, "1,013,123. BEAN. (U.S. Cls. 2, 13, 19, 23, 26 and 35). Reg. 6-10-75" should be deleted.

In the Official Gazette of Nov. 17, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 398, "1,014,263. PANORAMA AND DESIGN. (Int. Cls. 35, 36 and 42). Reg. 6-24-75" should be deleted.

In the Official Gazette of Dec. 1, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 117, "1,015,109. CHOLFAC. (Int. Cl. 5). Reg. 7-8-75" should be deleted.

In the Official Gazette of Dec. 1, 1981 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 118, "1,015,300. VILLA STAIR. (Int. Cl. 19). Reg. 7-8-75" should be deleted.

In the Official Gazette of Feb. 16, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 201, "1,018,559. JAGENBERG. (U.S. Cl. 23). Reg. 8-19-75" should be deleted.

In the Official Gazette of Feb. 16, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 201, "1,019,836. EPPY/N. (Int. Cl. 5). Reg. 9-9-75" should be deleted.

In the Official Gazette of Mar. 9, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 158, "1,022,402. LIME-OUT. (Int. Cl. 3). Reg. 10-14-75" should be deleted.

In the Official Gazette of Mar. 23, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 391, "1,018,310. SIERRA DESIGN (PLUS OTHER NOTATIONS) AND DESIGN. (U.S. Cl. 39). Reg. 8-12-75" should be deleted.

In the Official Gazette of Mar. 23, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 391, "1,018,541. SIERRA DESIGNS (PLUS OTHER NOTATIONS) AND DESIGN. (U.S. Cls. 3, 22 and 42). Reg. 8-19-75" should be deleted.

In the Official Gazette of Apr. 20, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 419, "1,025,584. CLEAR MORN AND DESIGN. (Int. Cl. 3). Reg. 11-25-75" should be deleted.

In the Official Gazette of May 4, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 141, "1,025,542. SOLDER BRITE. (Int. Cl. 1). Reg. 12-9-75" should be deleted.

In the Official Gazette of May 4, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 142, "1,026,808. STYLED BY SYDEL AND DESIGN. (Int. Cl. 25). Reg. 12-9-75" should be deleted.

In the Official Gazette of May 4, 1982 under TRADEMARK REGISTRATIONS CANCELLED, Section 8, on page TM 144, "1,027,031. ESE AND DESIGN. (U.S. Cl. 26). Reg. 12-9-75" should be deleted.

Notice of Application for Recordation of Trade Name

"BRITCHES GREAT OUTDOORS"

Application has been filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name "BRITCHES GREAT OUTDOORS," used by Canterbury Tales, Inc., 1321 Leslie Dr., Alexandria, Va. 22301.

The application states that the trade name is used in connection with the following merchandise which is manufactured in Hong Kong and Taiwan: men's and women's clothing; shoes, slippers, down booties and shoe trees; umbrellas; key rings; brass accessories; gift items; wallets; leather goods; attaches; luggage; clocks, watches and watch bands; sunglasses; razors; smoker's accessories; knives; games; books; food products; pens and ink; fabric; camping equipment; and retail clothing store services, in U.S. Patent and Trademark Office Classes 3; 11; 22; 27; 39; 40; 46; and 101. Appropriate accompanying papers were submitted with the application.

Before final action is taken on the application, consideration will be given to any relevant data, views, or arguments submitted in writing by any person in opposition to the recordation of this trade name. Any such submission should be addressed to the Commissioner of Customs, Entry, Licensing and Restricted Merchandise Branch, Washington, D.C. 20229, in time to be received no later than 60 days from the date of publication of this notice in the Federal Register.

For Further Information Contact:

Harriet Lane, Entry, Licensing and Restricted Merchandise Branch, U.S. Customs Service, 1301 Constitution Ave., NW., Washington, D.C. 20229 (202-566-5765).

Notice of the action taken on the application for recordation of this trade name will be published in the Federal Register.

DONALD W. LEWIS,

May 13, 1982 *Director Entry Procedures and Penalties Division.*

Notice of Application for Recordation of Trade Name

"MEAD JOHNSON & COMPANY"

Application has been filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name "MEAD JOHNSON & CO.," a corporation organized under the laws of the State of Delaware, located at 2404 Pennsylvania Street, Evansville, Ind. 47721.

The application states that the trade name is used in connection with the following merchandise manufactured in numerous foreign countries: pharmaceuticals and medicines; chemicals; toiletries; vitamins; medical appliances; foods for infants and invalids and other nutritional foods. Appropriate accompanying papers were submitted with the application.

Before final action is taken on the application, consideration will be given to any relevant data, views, or arguments submitted in writing by any person in opposition to the recordation of this trade name. Any such submission should be addressed to the Commissioner of Customs, Entry, Licensing and Restricted Merchandise Branch, Washington, D.C. 20229, in time to be received no later than 60 days from the date of publication of this notice in the Federal Register.

For Further Information Contact:

Harriet Lane, Entry, Licensing and Restricted Merchandise Branch, U.S. Customs Service, 1301 Constitution Ave., NW., Washington, D.C. 20229 (202-566-5765).

Notice of the action taken on the application for recordation of this trade name will be published in the Federal Register.

DONALD W. LEWIS,
May 13, 1982 *Director, Entry Procedure and Penalties Division.*

Notice of Recordation of Trade Name

SON-EXPORT, S.A. de C.V.

On Dec. 17, 1981, there was published in the Federal Register (46 FR 61532) a notice of application for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name "SON-EXPORT, S.A. de C.V." The notice advised that prior to final action on the application, filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), consideration would be given to relevant data, views, or arguments submitted in opposition to the recordation and recieved not later than 30 days from the date of publication of the notice. No responses were received in opposition to the application.

The name "SON-EXPORT S.A. de C.V." is hereby recorded as the trade name of Son-Export S.A. de C.V., a company governed by the laws of The Republic of Mexico, located at Plutarco Elias Calles y Rosales #124, Desp. 3003, Hermosillo, Sonora, Mexico. The trade name is applied to fresh frozen shellfish (shrimp).

DONALD W. LEWIS,
Apr. 27, 1982 *Director, Entry Procedures and Penalties Division*

Government—Owned Inventions

Availability for Licensing

The inventions listed below are assigned to the United States Government as represented by the Secretary of the Navy and are made available for licensing by the Department of the Navy.

For further information contact:

DR. A. C. WILLIAMS
Staff Patent Adviser
Office of Naval Research
Ballston Tower No. 1
Arlington, Va., 22217
Telephone No. 202-696-4005

Patent application 128,593. An Optimally Loaded Electrohyrodynamic Power Generator. Filed Mar. 4, 1980.

Patent application 131,341. High Velocity Exhaust Diffuser and Water Baffle. Filed Mar. 18, 1980.

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Patent application 144,707. Apparatus for Vertically Stacking Flat Weights. Filed Apr. 25, 1980.

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Patent application 175,118. Electronic Component Colling. Filed Aug. 4, 1980.

Patent application 181,524. Cable Connector. Filed Aug. 26, 1980.

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Patent application 187,672. Improved Field-Effect Transistor. Filed Sept. 16, 1980.

Patent application 193,324. Cross Reinforcement in a Graphite-Epoxy Laminate. Filed Oct. 2, 1981.

Patent application 194,168. Adaptive Correlator. Filed Oct. 6, 1981.

Patent application 200,728. Frequency Generator with Digitally Controlled Phase Modulation. Filed Oct. 27, 1982.

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Patent application 203,006. Lithium-6 Neutron Detector. Filed Nov. 3, 1980.

Patent application 203,086. Loss-of-Phase-Lock Indicator Circuit. Filed Oct. 31, 1980.

Patent application 206,424. Coil Device for Underwater Magnetic Testing. Filed Nov. 13, 1980.

Patent application 208,596. Non-Alloyed Heterojunction Ohmic Contacts. Filed Nov. 19, 1981.

Patent application 208,754. Tunnel Wedge. Filed Nov. 20, 1980.

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Patent application 216,722. Rotary Latch. Filed Dec. 15, 1980.

Patent application 221,964. Switching Regulated Power Supply. Filed Jan. 2, 1981.

Patent application 222,114. Spherical Segment Insertion Apparatus. Filed Jan. 2, 1981.

Patent application 223,635. Magnetostrictive Optical Fiber Cable and Magnetic Field Detector and Method Thereof. Filed Jan. 12, 1981.

Patent application 224,775. Ball Bearing Assembly Device. Filed Jan. 13, 1981.

Patent application 225,182. Insulated Fiber Brush. Filed Apr. 17, 1981.

Patent application 225,883. Height Adjustable Cargo Container Locking Mechanism. Filed Jan. 19, 1981.

Patent application 226,668. Electro-Ceramic Stack. Filed Jan. 21, 1981.

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Patent application 231,636. Coherent Anti-Stokes Raman Device. Filed Feb. 4, 1981.

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Patent application 241,309. Electro-Optical Modulator for an Electro-Optical Modulated Laser. Filed Mar. 6, 1981.

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Patent application 242,199. Shock Simulator. Filed Mar. 10, 1981.

Patent application 243,416. A Waveplate for Correcting Thermally Induced Stress Birefringence in Solid State Lasers. Filed Mar. 13, 1981.

Patent application 244,175. Feed-Forwarded Amplifier. Filed Mar. 16, 1981.

Patent application 244,380. Delay Cartridge With Temperature Programmed Flash. Filed Mar. 16, 1981.

Patent application 244,463. A Safety Mooring Line. Filed Mar. 16, 1981.

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Patent application 251,806. Radiosonde. Filed Apr. 7, 1981.

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Patent application 263,664. Composite Superconductors. Filed May 14, 1981.

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Patent application 266,229. Hybrid Coupled Microstrip Amplifier. Filed May 22, 1981.

Patent application 266,852. Psuedo-Random Noise Generated Target. Filed May 26, 1981.

Patent application 266,878. Process for Synthesizing Silylated Polyalkenamers. Filed May 26, 1981.

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Patent application 272,624. Airspeed Display Scale with Integral Trend Indication. Filed June 11, 1981.

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Patent application 275,564. Serial to Parallel Data Conversion Interface Circuit. Filed June 22, 1981.

Patent application 276,099. Collapsible Salvage Drum and Method. Filed June 22, 1981.

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Patent application 277,368. High Pressure Mechanical Mixer for Epoxy Compounds. Filed June 22, 1981.

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PATENT NOTICES

Certificates of Correction for the Week of June 15, 1982,

Re. 29,792	4,273,608	4,305,218	4,314,920
Re. 30,871	4,276,284	4,305,467	4,315,112
Re. 30,880	4,282,282	4,305,746	4,315,828
D 261,455	4,285,695	4,306,035	4,316,177
D 263,038	4,288,341	4,306,312	4,316,381
3,713,659	4,288,829	4,306,787	4,316,532
3,950,529	4,289,168	4,307,408	4,317,438
4,021,431	4,290,323	4,307,418	4,317,789
4,021,448	4,290,538	4,307,471	4,317,869
4,079,430	4,290,739	4,307,474	4,318,197
4,124,376	4,292,435	4,308,113	4,318,204
4,152,673	4,294,221	4,308,154	4,318,523
4,157,398	4,294,408	4,308,170	4,319,099
4,159,278	4,294,585	4,308,369	4,319,125
4,160,057	4,294,713	4,308,588	4,319,137
4,172,147	4,296,100	4,308,624	4,319,195
4,188,711	4,296,215	4,308,823	4,319,440
4,202,811	4,297,899	4,308,995	4,319,845
4,208,326	4,298,827	4,309,160	4,319,900
4,217,506	4,298,846	4,310,023	4,320,323
4,219,212	4,299,679	4,310,155	4,320,575
4,224,401	4,299,773	4,310,341	4,321,029
4,229,516	4,300,212	4,310,345	4,321,586
4,229,585	4,300,356	4,310,518	4,321,606
4,234,269	4,300,659	4,310,534	4,321,632
4,240,232	4,301,130	4,310,891	4,322,146
4,247,194	4,301,217	4,311,176	4,322,301
4,248,194	4,301,606	4,311,293	4,322,522
4,248,698	4,301,748	4,311,727	4,322,771
4,248,859	4,302,144	4,311,840	4,323,209
4,248,863	4,302,380	4,311,921	4,323,651
4,252,886	4,302,553	4,312,579	4,323,799
4,258,184	4,302,687	4,312,713	4,326,003
4,259,393	4,302,779	4,312,724	4,326,166
4,261,000	4,303,398	4,312,870	4,326,251
4,262,678	4,303,586	4,313,211	4,326,300
4,264,914	4,304,285	4,313,876	4,326,398
4,265,040	4,304,757	4,314,291	
4,268,872	4,305,106	4,314,492	

Disclaimers

4,063,101.—*Emanuel H. Duden,* Mortsel, Belgium. PACKAGE FOR FILMS. Patent dated Dec. 13, 1977. Disclaimer filed Apr. 9, 1982, by the assignee, *Agfa-Gevaert, N.V.*

Hereby enters this disclaimer to all claims of said patent.

4,076,312.—*Chang Yul Cha,* Bakersfield, Calif.; *Richard D. Ridley* and *Robert S. Burton, III,* Grand Junction, Colo. METHOD AND APPARATUS FOR RETORTING OIL SHALE AT SUBATMOSPHERIC PRESSURE. Patent dated Feb. 28, 1978. Disclaimer filed Aug. 31, 1981, by the assignee, *Occidental Oil Shale, Inc.*

Hereby enters this disclaimer to all claims of said patent.

4,195,849.—*Morris E. Taft,* Metamora, Ill. PISTON FLUID SEAL MOUNTING. Patent dated Apr. 1, 1980. Disclaimer filed June 18, 1981, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

4,196,588.—*Howard L. Johnson,* Joliet, Ill. MARGIN VALVE. Patent dated Apr. 8, 1980. Disclaimer filed Oct. 13, 1981, by the assignee, *Caterpillar Tractor Co.*

Hereby enters this disclaimer to claims 1 and 20 of said patent.

4,293,734.—*William Pepper, Jr.,* Bethesda, Md. TOUCH PANEL SYSTEM AND METHOD. Patent dated Oct. 6, 1981. Disclaimer filed Apr. 7, 1982, by the assignee, *Peptek, Inc.*

Hereby enters this disclaimer to claims 23, 24 and 27 of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

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	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
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	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
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	New York Public Library (The Research Libraries)	(212) 930-0850
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	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
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	Milwaukee Public Library	(414) 278-3043

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 15, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-04-80
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	3-04-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	4-09-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-08-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	4-15-81
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	8-29-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-20-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	6-04-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	8-11-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	10-02-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	1-07-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	6-26-80

Expiration of patents: The patents within the range of numbers indicated below expire during May 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,181,175 to 3,186,003, inclusive

Plant Patents ..... Numbers 2,502 to 2,521 inclusive

REISSUES

JUNE 15, 1982

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

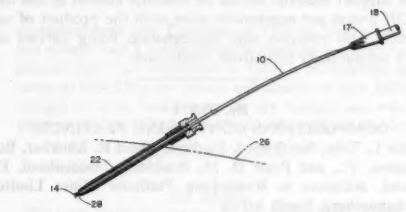
Re. 30,966
WICK CATHETER PRESSURE SENSING PROBE AND METHOD OF USE

Alan R. Hargens, and Scott J. Mubarak, both of San Diego, Calif., assignors to Regents of the University of California, Berkeley, Calif.

Original No. 4,192,319, dated Mar. 11, 1980, Ser. No. 838,187, Sep. 30, 1977. Application for reissue Dec. 8, 1980, Ser. No. 214,591

Int. Cl.[3] **A61B** *5/02;* **A61M** *5/00*

U.S. Cl. 128—748 **7 Claims**



1. A method of measuring interstitial pressures comprising:
inserting a sheathed placement needle through the skin and through any other region of relatively high penetration resistance;
partially withdrawing the needle into the sheath so that the tip of the needle is within the sheath;
further inserting the sheath and needle to a desired placement within a tissue of interest;
withdrawing the needle, leaving the sheath in place;
attaching a tether to a wick;
positioning the wick partially in one end of a catheter which has an adapter attached to its other end;
filling the catheter with a [sterilized heparinized] solution;
inserting the catheter tube with wick in to the sheath until the one end thereof resides at the desired placement within the body tissue;
connecting a pressure-sensing and indicating means to the adapter on said other end.

Re. 30,967
AUTOMATICALLY CONTROLLED WEIGH FEEDING APPARATUS

Angelo Ferrara, Fairfield; Ronald J. Ricciardi, Garfield, and Alexander A. Urban, Park Ridge, all of N.J., assignors to Acrison, Inc., Moonachie, N.J.

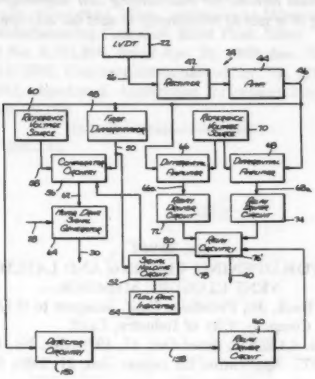
Original No. 3,967,758, dated Jul. 6, 1976, Ser. No. 550,639, Feb. 18, 1975. Continuation-in-part of Ser. No. 345,587, Mar. 28, 1973, Pat. No. 3,889,848, which is a continuation-in-part of Ser. No. 274,844, Jul. 25, 1972, abandoned. Application for reissue Feb. 25, 1980, Ser. No. 124,052

The portion of the term of this patent subsequent to Jun. 17, 1992, has been disclaimed.

Int. Cl.[3] **G01G** *11/14*

U.S. Cl. 222—58 **16 Claims**

9. A weigh feeding apparatus comprising a container for a prefilled substance, means for discharging the substance from the container at a controllable rate, means for weighing the container and its contents for producing an electrical signal proportional to the weight, said electrical signal exhibiting excessive excursions in response to disturbances impinging on said weighing means, means actuated by said electrical signal for controlling the discharge of the substance from the container, detector circuit means actuated by said electrical signal for producing an output which is responsive to predetermined excessive excursions of said electrical signal, and means responsive to said output for locking the discharge control means against deviation during the time of said predetermined excessive excursions.



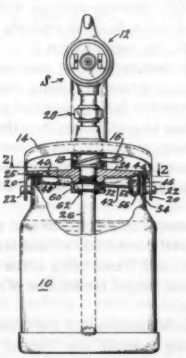
Re. 30,968
ATTACHMENT FOR PAINT SPRAY GUN SYSTEMS

Colonel E. Grant, Toledo, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio

Original No. 3,990,609, dated Nov. 9, 1976, Ser. No. 666,192, Mar. 12, 1976. Application for reissue Sep. 24, 1979, Ser. No. 60,822

Int. Cl.[3] **B05B** *1/28*

U.S. Cl. 222—111 **3 Claims**



1. An attachment for a spray painting apparatus comprising a spray gun and an open-mouth paint cup, a lid seated on said paint cup to close the same with a peripheral seal against leakage, said lid having a vent opening therein, a delivery tube extending from the lower side of said paint cup to said spray gun, means to attach said delivery tube to said lid for removal therewith, *said attaching means including a locknut;* said attachment consisting of a diaphragm having a peripheral flange for engagement between the peripheral seal of said lid and said paint cup, a downwardly extending wall inwardly of said

flange and of progressively increasing length forming with said diaphragm a chamber that is deeper at one side than at the opposite side, said deeper side being oriented away from the vent opening in said lid and having a second vent opening in the lower surface thereof, and means in the center portion of said diaphragm to engage said delivery tube and delivery tube [retaining] *attaching* means in a substantially liquid-tight connection *said engaging means including a formed boss which mates with said locknut for maintaining said diaphragm second vent opening in a spaced relationship to said lid vent opening.*

Re. 30,969

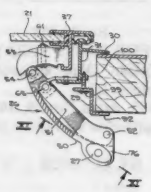
DEVICE FOR OPENING, CLOSING AND LATCHING A VENT CLOSURE MEMBER

Elwood W. Buck, Jr., Pasadena, Calif., assignor to D G Shelter Products Company, City of Industry, Calif.

Original No. 4,120,524, dated Oct. 17, 1978, Ser. No. 813,502, Jul. 7, 1977. Application for reissue Jan. 21, 1980, Ser. No. 113,716

Int. Cl.[3] E05C *17/32*

U.S. Cl. 292—263 12 Claims



1. In a means for opening, closing, and latching a closure member hinged at one side of an opening defined by a frame provided in a wall, the combination of:

an upper latch member having one end provided with a pivotal connection to said closure member;

a lower latch member having one end provided with a pivotal connection to said frame; the other ends of said latch members being pivotally interconnected together; the pivotal connection of the lower latch member to said frame having a pivotal axis adjacent the plane of the frame opening;

and actuating means connected to said upper latch member and said pivotal connection of said latch members to said closure and to said frame being at the side of said opening opposite to said hinged connection of said closure member to said frame;

the pivotal interconnections of the other ends of said latch members lying beneath the framed opening when the closure member is closed and the latch members are collapsed and in nested relation;

said pivotal connections providing pivotal axis having a toggle relationship in closed position of said closure member;

and means to adjust clearance of said nested latch members with respect to the interior surface of said wall, said adjustment means including

a bolt carried by said closure members;

and a connecting block threaded on said bolt and providing a pivotal connection for said upper latch member.

Re. 30,970

POLYMERIZATION CATALYST

David L. Hyde, East Pleen, and Kenneth C. Kirkwood, Larbert, both of Scotland, assignors to BP Chemicals Limited, London, England

Original No. 4,087,380, dated May 2, 1978, Ser. No. 706,759, Jul. 19, 1976. Application for reissue Dec. 3, 1980, Ser. No. 212,695

Claims priority, application United Kingdom, Jul. 30, 1975, 31891/75

Int. Cl.[3] B01J *31/02, 31/12*

U.S. Cl. 252—429 B 7 Claims

1. A process for the production of a supported Ziegler catalyst component comprising reacting a transition metal compound which is a chloride, chloro-alkoxide or oxychloride of titanium, vanadium or zirconium, with an aliphatic alcohol containing 1–6 carbon atoms and impregnating a magnesium oxide support material *having an hydroxyl content of less than 0.2 OH groups per magnesium atom* with the product of said reaction, said reaction and impregnation being carried out under substantially anhydrous conditions.

Re. 30,971

COMPOSITIONS CONTAINING PLATINUM

Martin L. Tobe, Northwood, England; Abdul R. Khokhar, Burlington, Vt., and Peter D. M. Braddock, Maidenhead, England, assignors to Rustenburg Platinum Mines Limited, Johannesburg, South Africa

Original No. 4,119,654, dated Oct. 10, 1978, Ser. No. 770,313, Feb. 22, 1977. Application for reissue Feb. 20, 1980, Ser. No. 119,656

Claims priority, application United Kingdom, Feb. 26, 1976, 7650/76

Int. Cl.[3] C07F *15/00*

U.S. Cl. 260—429 R 8 Claims

1. A co-ordination compound of platinum having the structure:

in which X and Y are halogen and A and B are the same or different branched chain aliphatic amine groups or C-substituted branched chain aliphatic amine groups co-ordinated to the Pt through their N atoms each having the general formula

$$C_nR_{2n+1}NH_2$$

in which n may vary from 3 to 9 and in which all of the R groups are the same or different and are selected from the group consisting of hydrogen, alkyl, aryl, alkaryl, aralkyl, halogen, pseudohalogen, hydroxy, carbonyl, formyl, nitro, amido, amino, sulphonic acid, sulphonic acid salt, carboxylic acid and carboxylic acid salt.

Re. 30,972

MANAGEMENT OF INCONTINENCE

William Kyle, Lower Templestowe, and Bruce H. Lee, Mount Waverly, both of Australia, assignors to Nicholas Proprietary Limited, Victoria, Australia

Original No. 4,128,686, dated Dec. 5, 1978, Ser. No. 759,549, Jan. 14, 1977. Application for reissue Feb. 21, 1980, Ser. No. 123,426

Claims priority, application Australia, Feb. 3, 1976, PC4702; Feb. 12, 1976, PC4831; Apr. 1, 1976, PC5435

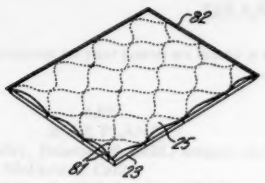
Int. Cl.[3] B32B *5/02;* A61F *13/16;* B32B *5/06*

U.S. Cl. 428—219 19 Claims

1. In an assembly for the management of incontinence comprising at least one layer of non-absorbent hydrophobic textile material through which urine can freely pass and at least one

layer of absorbent hydrophilic textile material behind the said at least one non-absorbent layer to receive and absorb urine passing through the said at least one non-absorbent layer,

the improvement comprised in that the absorbent layer is formed of aligned cellulosic staple fibers of at least 0.5 inch length and denier in the range 2 to 7 formed into a



cross-laid web and [needled at 1500 to 2000 punchings per square inch] *consolidated by needling to a thickness no greater than 1.25 centimeter* to form a felt*weighing in the range of 500–850 g/m*^{2} which will absorb at least 350% by weight of urine based upon its dry weight and will disperse urine laterally by capillarity throughout the felt.

Re. 30,973

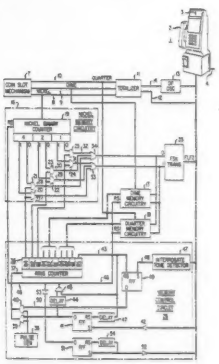
TELEPHONE STATION COIN MEMORY AND CONTROL SYSTEM

Alfred Zarouni, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Original No. 4,124,774, dated Nov. 7, 1978, Ser. No. 819,244, Jul. 27, 1977. Application for reissue Nov. 6, 1980, Ser. No. 204,557

Int. Cl.^{3} **H04M** *17/00*

U.S. Cl. 179—6.3 R **35 Claims**



32. A coin box arrangement comprising:

memory means for registering signals indicating the number of each denomination of coins deposited in the coin box,

memory control means for sequentially reading out of said memory means registered signals indicating the number of each denomination of coins deposited, and

means responsive to the signals readout of said memory means for sequentially transmitting signals specifying the number of each denomination of coins deposited.

Re. 30,974

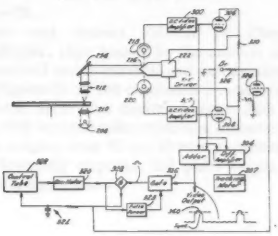
PRODUCTION OF TELEVISION SIGNALS FROM PHOTOGRAPHIC DISC RECORDINGS

Dean L. De Moss, Glendale, Calif., David P. Gregg, Los Angeles, Calif., and Wayne R. Johnson, deceased, late of Los Angeles, Calif., by Minnesota Mining and Manufacturing Company, Saint Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Original No. 3,381,086, dated Apr. 30, 1968, Ser. No. 217,408, Aug. 16, 1962. Continuation-in-part of Ser. No. 181,392, Mar. 21, 1962, abandoned. Application for reissue May 15, 1979, Ser. No. 39,286

Int. Cl.^{3} **G11B** *7/02, 25/04*

U.S. Cl. 369—44 **13 Claims**



6. In combination in a system for reproducing *video* information from a rotatable medium where the medium has characteristics at progressive positions along a spiral path for modifying energy directed at the medium in representation of *video* information previously recorded on the medium where the information recorded on the medium at each successive position along the spiral path represents substantially less than a complete visual image,

means operatively coupled to the medium for producing a continuous rotation of the medium,

pickup means disposed relative to the medium including,

means for directing [energy] *a beam of energy having a radius not greater than approximately one micron to enable the reproduction of the video information* at the medium at each instant to obtain a modification of the energy passing from the medium at that instant in accordance with the variations in the characteristics of the medium at the progressive positions along the spiral path, and

means responsive to the modified energy at each instant for producing signals having characteristics representative at that instant of the information recorded at the progressive positions along the spiral path on the medium, [and]

means operatively coupled to the pickup means for varying in synchronism at each instant the position of the means for directing energy and the means responsive to the modified energy in a direction having a radial component to obtain a *coarse* tracking at each instant of the characteristics at the progressive positions along the spiral path on the medium, *and means for varying in synchronism at each instant the position of the signal producing means relative to the energy directing means to obtain a fine tracking along the spiral path on the medium.*

PLANT PATENTS

GRANTED JUNE 15, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,857

ROSE PLANT

Dorothy J. S. Bailey, Bakersfield, Calif., assignor to San Joaquin Rose Co., McFarland, Calif.

Filed Sep. 9, 1980, Ser. No. 185,443
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—22 **1 Claim**

1. A new and distinct variety of rose plant of the floribunda class, substantially as shown and described, characterized particularly by a floriferous, vigorous, free branching spreading plant with abundant foliage and superior disease resistance producing many flowers of overall lavender tonality borne singly and in large sprays.

4,858

CHRYSANTHEMUM PLANT

Dennis E. Miller, and William E. Duffett, both of Salinas, Calif., assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 27, 1980, Ser. No. 125,191
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—76 **1 Claim**

1. A new and distinct cultivar of *Chrysanthemum morifolium,* Ramat., plant known by the cultivar name Temptation, as described and illustrated, and particularly characterized as to uniqueness by the combined characteristics of flat capitulum form; decorative capitulum type; dark purple ray floret color, with minimal color oxidation; diameter across face of capitulum ranging from 90 to 110 mm. at maturity; uniform nine week flowering response; tall plant height; and semi-spreading branching pattern.

PATENTS

GRANTED JUN. 15, 1982

ERRATA

For CLASS	See PATENT NO.
312–111	4,334,359
464–134	4,334,414
464–130	4,334,415
413–006	4,334,487
241–171	4,334,626
524–088	4,334,878
524–191	4,334,932
524–271	4,335,026
528–281	4,335,027
524–504	4,335,028
524–589	4,335,029
523–408	4,335,030
524–504	4,335,031
524–269	4,335,032
524–525	4,335,033
524–423	4,335,034
523–212	4,335,035
524–376	4,335,036
524–504	4,335,037
524–188	4,335,038
524–108	4,335,039
548–475	4,335,044
548–566	4,335,045
549–392	4,335,046
549–369	4,335,047
549–402	4,335,048
549–483	4,335,049
525–089	4,335,221
526–234	4,335,237
526–254	4,335,238
373–083	4,335,265
372–046	4,335,362

PATENTS

(GRANTED JUNE 15, 1982)

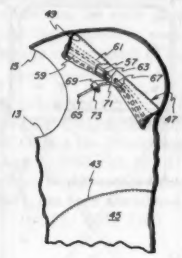
ERRATA

PATENTS

GRANTED JUNE 15, 1982

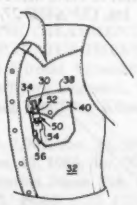
GENERAL AND MECHANICAL

4,334,325
GARMENT HOOD
Joseph Walkuski, 133 Acorn Dr., Scotia, N.Y. 12302
Filed Oct. 23, 1980, Ser. No. 199,694
Int. Cl.³ A42B *1/04*
U.S. Cl. 2—202 **7 Claims**



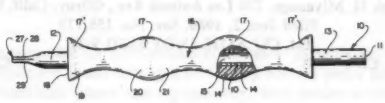
1. A hood for use with a garment, said hood having a casing which encircles and follows around the crown of the wearer's head for clamping action therewith such that said hood will move along with the wearer's head whenever the head is moved and such that said casing affords the wearer unrestricted, side to side, pivotal head movement, said casing having top and bottom channels being separated from each other over at least a portion of their length, freely receiving and carrying a drawstring, said drawstring being threaded and disposed through said top and bottom channels, one end of said drawstring being disposed through said top channel and fixed to said casing, the other end of said drawstring being free and exiting through said bottom channel, said casing being narrower at the sides of the wearer's head above the wearer's ears, said free end of said drawstring being pulled forward to tighten said drawstring to thereby effect the clamping action of said casing on and with the crown of the wearer's head by said casing gathering around the wearer's ears and by said casing grabbing the wearer's forehead and by grabbing around the hump in the back of the wearer's head.

4,334,326
KEY HOLDER
Thomas T. Mallow, 1133 Fifth Ave., New York, N.Y. 10028
Filed Oct. 8, 1980, Ser. No. 195,190
Int. Cl.³ A41D *27/20*
U.S. Cl. 2—249 **3 Claims**



1. An improved key holder for a garment or the like comprising, in combination, a fabric having an operative area delineated thereon for the attachment of a pocket, a closed loop having an operative condition of having an end in stitched attachment to said fabric at a selected location below a horizontally oriented reference line coincident with an upper edge of said pocket when in attached relation thereto, means for removably connecting a key to said closed loop, a pocket patch attached in covering relation over said loop having an upper unattached edge bounding the opening into said pocket operatively disposed above said attached end of said loop and along said horizontally oriented reference line so as to mask the presence of said loop, and said pocket patch having an opening oriented in the width direction of said closed loop and sized to permit said unattached end of said loop to be projected therethrough located in aligned relation to said closed loop, whereby said closed loop and any key attached thereto can be worn either in an external display position projected through said pocket patch opening or in an unrevealed position within said pocket.

4,334,327
URETERAL PROSTHESIS
Donald J. Lyman, and Richard G. Middleton, both of Salt Lake City, Utah, assignors to University of Utah, Salt Lake City, Utah
Filed Dec. 21, 1979, Ser. No. 106,175
Int. Cl.³ A61F *1/24*
U.S. Cl. 3—1 **18 Claims**

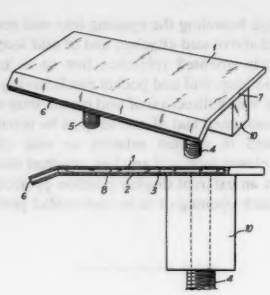


1. A distal ureter prosthesis comprising:
a. a substantially straight, flexible, elongate duct formed of block copolymers and having a lumen with an inner diameter approximately ranging from a normal human ureter diameter to as much as four times this size as seen in some diseased conditions, and an interior surface of said block copolymer which is ultrasmooth based on microscopic inspection;
b. one-way valve means coupled at one end of said duct for permitting outflow of fluid therefrom, while preventing backflow from fluids exterior to the duct;
c. terminal sewing projections formed around the ends of the duct except for exposed terminal segments of the duct which project beyond the terminal sewing projections; and
d. at least one sewing projection integrally attached to said duct at an intermediate location between the terminal sewing projections and including a site for suturing to provide means for secure fixation of the prosthesis within the patient.

4,334,328
WIDE-MOUTHED SPOUT FOR FLOW OF LIQUID
Jean C. Delepine, 23 rue Clapeyron, 75008 Paris, France
Filed Nov. 17, 1980, Ser. No. 207,609
Claims priority, application France, Nov. 16, 1979, 79 28285
Int. Cl.³ E03C *1/00*
U.S. Cl. 4—191 **9 Claims**

1. A wide-mouthed flow spout connected to at least one liquid delivery pipe for emitting a curtain of liquid from the spout comprising a wide flat chamber in the form of a blade into which said at least one liquid delivery pipe opens, said chamber being in communication with the outside via a long

narrow slot in a side of the chamber, the length of the slot being substantially equal to the length of the cross-section of



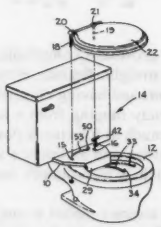
the chamber transversely to the flow of liquid from said chamber.

4,334,329

ATTACHMENT FOR A WATER CLOSET

Frank H. Miyanaga, 720 Las Animas Ave., Gilroy, Calif. 95020

Filed Jun. 2, 1980, Ser. No. 155,773
Int. Cl.[3] A61H *35/00*; E03D *9/08*
U.S. Cl. 4—443 **5 Claims**



1. In a water closet having a bowl with an annular upper surface, a toilet seat, and means detachably securing said seat to the upper surface of said bowl at the rear thereof,

a bidet attachment therefor comprising:

a mounting plate having a substantially planar upper portion for engagement with the underside of said seat, and having depending side flanges for engaging the upper surface of the bowl to space said upper portion theefrom and a depending transverse forward flange therebetween to extend within the bowl,

means on said plate for cooperative association with said seat and bowl securing means for fixing said plate between said seat and bowl,

a spray conduit pivotally mounted to said plate, said conduit including a nozzle portion extending forwardly therefrom beneath said forward flange and a control lever portion extending rearwardly beneath said mounting plate upper portion for manual engagement, whereby movement of said control portion of said spray conduit swings said forward nozzle portion relative to said plate for appropriate positioning with respect to said bowl and seat, and,

a valve-controlled water supply line connected to said conduit,

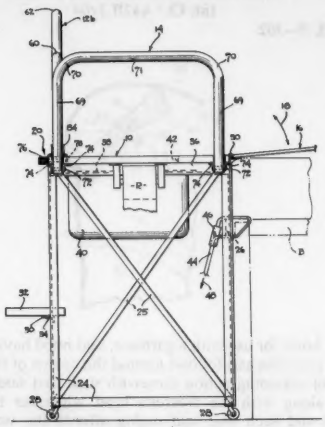
whereby said attachment provides a bidet for a water closet without alteration of said bowl or seat thereof.

4,334,330

BEDSIDE COMMODE

Arthur K. Marshall, 149 N. Carmelina Ave., Los Angeles, Calif. 90049

Filed Nov. 3, 1980, Ser. No. 203,278
Int. Cl.[3] A47K *11/06*; A61G *7/02*
U.S. Cl. 4—480 **16 Claims**



1. A mobile bedside commode which is removably attachable to a bed of a patient, comprising in combination:

a frame structure;

a platform attached to said frame structure, said platform including a toilet cutout and means for holding a toilet bowl underneath said cutout;

peripheral railing means attachably connected to said platform and extending upwardly therefrom along the front and side edges of said platform for preventing the patient from falling from said platform seat and for providing a gripping handle for the patient; and

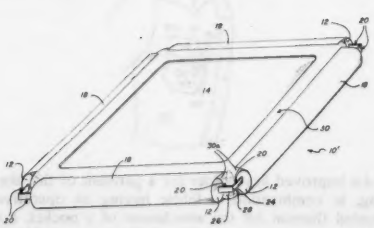
ramp means connected to and extending laterally from the back edge of said platform to provide a bridge between said platform and the bed, to allow the patient to move with minimal or no assistance back and forth between the bed and said commode.

4,334,331

PERIMETER SUPPORT FOR A WATERBED MATTRESS

Philip J. Santo, 3750 Monroe Ave., Pittsford, N.Y. 14534

Filed Apr. 3, 1980, Ser. No. 136,822
Int. Cl.[3] A47C *27/08*
U.S. Cl. 5—452 **12 Claims**



1. In a waterbed mattress having fluid-filled flexible bladder, means for supporting the perimeter of such bladder providing improved structural rigidity, said supporting means comprising:

at least two self-contained chambers, each such chamber including a compressible medium and an elongated rigid member substantially surrounded by said compressible medium and extending therethrough;

at least two flexible dimensionally stable sleeves attached to the flexible bladder to be coextensive with opposing perimeter portions of said bladder for releasably retaining said chambers respectively in contact with such perimeter of the bladder;

means for interconnecting said rigid members whereby the bladder is supported with an improved degree of structural rigidity by said chambers, the ends of said rigid members terminating beyond the respective ends of the chambers thereby facilitating the replacement of damaged chambers.

4,334,332

MOTOR-DRIVEN CAP-GRIPPER AND CAN-OPENER

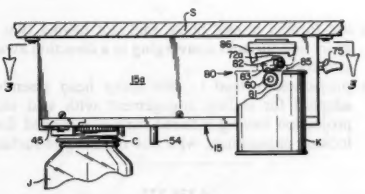
Edgar S. Downs, 907 Oxford Dr., Worthington, Ohio 43085

Filed Aug. 6, 1980, Ser. No. 175,933

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

Int. Cl.³ B25F *1/00*

U.S. Cl. 7—150 **9 Claims**



1. An appliance comprising a jar cap-gripper and a can-opener actuated by the same electric motor, said cap-gripper comprising relatively movable jaws which are moved between clamping and non-clamping positions relative to a cap inserted therebetween, a drive for moving said jaws relatively by said motor, a can-opener including a driver wheel driven directly from said motor, said can-opener also including a cutting member movable into cooperative relationship with the driver wheel, can-opener actuating means for moving the cutting member into said relationship, a clutch normally engaged to complete the drive from said motor to said cap-gripper but being capable of disengagement to interrupt the drive to said cap-gripper from said motor, said clutch being disengaged by actuation of said can-opener actuating means.

4,334,333

METHOD OF DYEING TREATMENT FOR A FABRIC AND APPARATUS THEREFOR

Kazuo Yamada, Oharu; Hiroshi Yamashita, Nagoya; Hiroshi Mizutani, Mie, and Mitsuru Sugimura, Tsushima, all of Japan, assignors to Nihon Senshoku Kikai Kabushiki Kaisha, Aichi, Japan

Continuation of Ser. No. 7,761, Jan. 29, 1979, abandoned. This application Jun. 13, 1980, Ser. No. 159,208

Claims priority, application Japan, Feb. 10, 1978, 53-13601

Int. Cl.³ D06B *3/10, 17/02*

U.S. Cl. 8—152 **2 Claims**

1. A method of dyeing a fabric, which comprises

providing a residence vessel having a perforated bottom plate, perforated side plates and an open top, said residence vessel being positioned within a dyeing tank equipped with dye liquor,

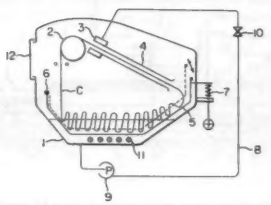
positioning an endless form of said fabric in said dyeing tank so as to be repeatedly circulated through said dyeing tank and said residence vessel,

applying said dye liquor to said fabric at an upper portion of said dyeing tank,

reciprocating said residence vessel as a whole substantially in a vertical direction, to forcibly forward said fabric within said residence vessel and also to cause dye liquor in a bottom portion of said dyeing tank to flow into and out of perforations in said residence vessel, in a manner such that, in the length of said fabric between the initial point of entry of said fabric into said dye liquor in said residence vessel and the final point of exit of said fabric from said dye liquor in said residence vessel, there are portions of said length of fabric which are above the level of said dye liquor in said residence vessel, and

recirculating said dye liquor from said bottom portion of said dyeing tank to said upper portion of said dyeing tank.

2. A dyeing apparatus for dyeing a fabric, said apparatus comprising



a dyeing tank for accommodating a fabric to be dyed,

a residence vessel having a perforated bottom plate, perforated side plates and an open top, said residence vessel being pivotably supported at one end thereof within said dyeing tank so as to be freely reciprocated as a whole substantially in a vertical direction to forcibly forward the fabric within said residence vessel,

means associated with said dyeing tank for driving said residence vessel substantially in a vertical direction about the pivotably supported one end thereof,

means for repeatedly circulating the fabric in endless form through said dyeing tak and said residence vessel,

means for applying a dye liquor to the fabric and positioned in an upper portion of said dyeing tank, and

means for recirculating the dye liquor from a bottom portion of said dyeing tank to said means for applying the dye liquor to the fabric.

4,334,334

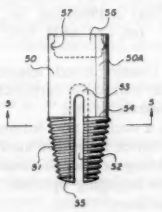
THREAD CLEANING DEVICE

David E. Wendell, 118 Warwick Dr., #58, Benicia, Calif. 94510

Division of Ser. No. 64,772, Aug. 8, 1979. This application Aug. 28, 1980, Ser. No. 182,014

Int. Cl.³ B23G *5/00*

U.S. Cl. 15—236 R **4 Claims**



1. A thread chaser comprising a solid body having:

(a) a cylindrical portion which has means to attach to a drive shaft therein,

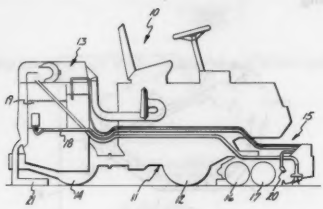
(b) a conical section being distal to said drive shaft attaching means and having pipe threads thereover, a chamfer at the terminus thereof and at least one slot extending through said conical section and dividing said conical section.

4,334,335

SCRUBBER WITH HYDRAULIC SQUEEGEE LIFT

Neil F. Brown, Minneapolis; Keith N. Krier, Tonka Bay, and Ranjan K. Nirgude, New Hope, all of Minn., assignors to Tennant Company, Minneapolis, Minn.

Filed Sep. 3, 1980, Ser. No. 183,727
Int. Cl.³ A47L 7/00
U.S. Cl. 15—319 **17 Claims**



1. A scrubbing device, comprising a body structure; front and rear wheel means for movably supporting the body structure; steering means for controlling the direction traversed by the scrubbing device; scrubbing brush means carried by the body for wetting and scrubbing a path; scrubbing brush lift means for raising and lowering the scrubbing brush means; vacuum squeegee means carried by the body and disposed rearwardly of the brush means for picking up scrubbing solution from the wetted path; squeegee lift means for hydraulically raising and lowering the vacuum squeegee means; hydraulic power source means carried by the body, said power source means serving to pump a flow of hydraulic fluid in a first direction for driving said wheel means in a forward direction; said power source means serving to pump said hydraulic fluid in a reverse direction for driving said wheel means in a reverse direction; said power source means further serving to drive said scrubbing brush means, said scrubbing brush lift means, said vacuum squeegee means, and said squeegee lift means; solenoid operated hydraulic valve means for actuating said squeegee lift means and hydraulically powered flow-sensing electrical switch means for driving said solenoid valve means, said hydraulic switch means serving to sense the flow direction of the hydraulic fluid in reverse and to then activate said squeegee lift means.

4,334,336

SURFACE CLEANING VACUUM NOZZLE

Martin E. Harbeck, and Henry C. Harbin, both of Anderson, S.C., assignors to The Singer Company, Stamford, Conn.

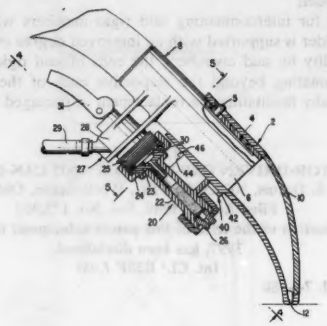
Filed May 2, 1980, Ser. No. 145,645
Int. Cl.³ A47L 9/02
U.S. Cl. 15—322 **10 Claims**

5. An upholstery cleaning nozzle adapted for use in conjunction with a hot water extraction carpet cleaning system or the like, said cleaning nozzle having:

a. a body having a suction port formed in one end thereof and an intake orifice formed in another end thereof, said intake orifice being in vacuum communication with said suction port for engaging upholstery and removing dirt and debris therefrom;

b. a spray head assembly having a cleaning fluid connector portion for attachment to a cleaning fluid source wherein said spray head assembly is in fluid communication with said fluid source for dispensing cleaning fluid on the upholstery in proximity to said intake orifice; and

c. attachment means for slidingly attaching said spray head assembly to said body so that said suction port may be connected to said suction source independent of and prior to connecting said cleaning fluid connector portion to said cleaning fluid source, wherein said attachment means comprises:



a slot formed in said body, said slot having two spaced apart side surfaces converging in a direction away from said body;

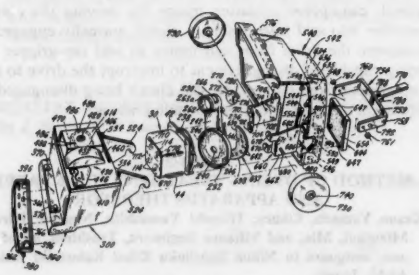
a projection formed in said spray head assembly and adapted for sliding engagement with said slot, said projection having a flared surface arranged for interlocking engagement with one of said side surfaces.

4,334,337

COMPACT WET-DRY ELECTRIC VACUUM CLEANER

Jonathan Miller; Richard Fegan, both of Williamsport; Robert C. Berfield, Jersey Shore; Kenneth R. Hiester, Cogan Station, and Rudolph W. Wacek, Montoursville, all of Pa., assignors to Shop-Vac Corporation, Williamsport, Pa.

Filed Mar. 28, 1980, Ser. No. 134,776
Int. Cl.³ A47L 5/32
U.S. Cl. 15—326 **83 Claims**



1. A vacuum cleaner, comprising:

a suction inlet;

a blower fan in communication with said suction inlet for drawing air and other materials into said suction inlet; an outlet path for air from said blower fan; a motor for driving said blower fan;

a tank interposed between said suction inlet and said blower fan for receiving materials drawn in through said suction inlet; said tank having an inlet nozzle communicating with said suction inlet; said inlet nozzle having a smaller cross-section than the cross-section of said tank, whereby air flow is slowed in said tank so that collected materials

settle in said tank; an air outlet from said tank communicating with said blower fan;

said tank has upstanding side walls and has a bottom and a top; said suction inlet being located at said tank bottom; said tank inlet nozzle extending up from said suction inlet toward said tank top; said inlet nozzle terminating in an exit located toward said top of said tank;

an auxiliary inlet to said tank located away from said suction inlet and said inlet nozzle; closing means for selectively closing one of said inlet nozzle to said tank and said auxiliary inlet to said tank, while causing the other of said inlet nozzle and said auxiliary inlet to remain open;

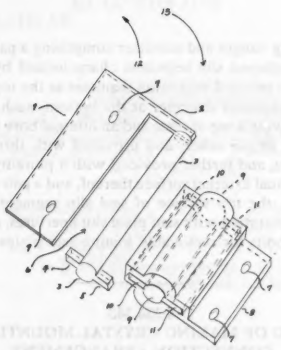
a housing for said blower fan motor; separable attachment means for separably attaching said tank to said housing, whereby said housing and said tank are operated together as a vacuum cleaner and said tank may also be separated from said housing.

4,334,338

SEPARABLE HINGE

John L. Conn, P.O. Box 4501-Sta. B, Spartanburg, S.C. 29303

Filed Dec. 29, 1980, Ser. No. 220,691
Int. Cl.³ E05D *7/10*
U.S. Cl. 16—266 **1 Claim**



1. A hinge assembly comprising two interfitting portions wherein the first portion includes a first base plate having an arm extending from one side that integrally connects to a first end of a cylinderical shaft, said shaft extending parallel to said base plate's one side and having a second free end with external keys thereon, said shaft and base plate being coplaner; and the second portion including a hollow cylinder affixed to a second base plate with the longitudinal axis of said cylinder being substantially coplaner thereto and wherein said cylinder includes internal keyway grooves adapted to slidingly receive the shaft's external keys, with the length of said cylinder being less than the length of said shaft and said shaft being sufficiently spaced from said base plate edge to allow said second portion to rotate almost 360 degrees around said shaft.

4,334,339

MOLD DEVICE WITH MOVABLE COMPRESSION INSERT

James A. Holly, Crestwood, Ill., assignor to Hollymatic Corporation, Park Forest, Ill.

Filed May 12, 1980, Ser. No. 149,050
Int. Cl.³ A22C *7/00*
U.S. Cl. 17—32 **17 Claims**

1. An apparatus for molding a patty of plastic food material, such as ground meat and the like, comprising:

supply means for providing said food material under pressure;

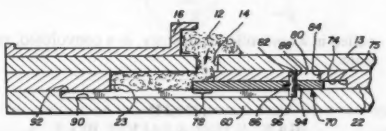
a bottom plate;

a fill plate spaced from and disposed over said bottom plate and fixed relative to said bottom plate, said fill plate defining therein a fill opening communicating with said food material supply means and adapted to permit the passage of pressurized food material from said supply means through said fill plate;

a mold plate slidably disposed between said fill and bottom plates and having a mold opening for receiving said food material under pressure through said fill plate opening, said mold plate being adapted to be reciprocated relative to said fill and bottom plates between a retracted mold filling position and an extended molded patty ejecting position;

means for reciprocating said mold plate between said mold filling and patty ejecting positions;

a mold opening insert slidably mounted for reciprocative movement relative to said fill and bottom plates in a direction parallel to the movement of said mold plate and adapted to permit relative movement of said mold plate so that a portion of said insert projects into said mold opening when said mold plate is in said mold filling position and so that said portion of the insert is retracted from said mold opening when said mold plate is in said patty ejecting position;



said mold plate including first engaging means for engaging a portion of said insert after said mold plate is moved a predetermined distance relative to said insert from said patty ejecting position toward said mold filling position, at which predetermined distance said insert projects into said mold opening a predetermined amount; and

said mold plate further including second engaging means for engaging a portion of said insert after said mold plate is moved said predetermined distance relative to said insert away from said mold filling position toward said patty ejecting position to thereby move said insert with said mold plate with said insert retracted from said mold opening, whereby pressurized food material in said mold opening can expand to fill the volume previously occupied by said insert portion within said mold opening.

4,334,340

SYSTEM AND METHOD FOR DISPERSING FILAMENTS

Imants Reba, Vancouver, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

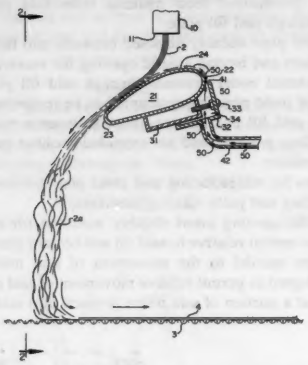
Filed Jan. 25, 1980, Ser. No. 115,308
Int. Cl.³ D04H *3/03*
U.S. Cl. 19—299 **26 Claims**

1. A system for dispersing a plurality of closely associated filaments capable of deposition in a convoluted, random pattern on a moving web-forming surface to produce a substantially uniform, high machine-direction strength web comprising:

a. Means for discharging said closely associated filaments in a stream of air and in an essentially downward direction; and

b. A fluid-dynamically-assisted, contoured deflection means comprising a two-dimensional Coanda nozzle including a curved downwardly-inclined deflection element which is continuously traversed, generally codirectionally with the filament flow, by a further stream of air, said deflection means being positioned in the path of said filaments for impingement thereagainst, the filaments, on impingement

against said deflection means being laterally dispersed by the latter air stream, the dispersed filaments being impelled in a controlled trajectory, in a convoluted, random state.



4,334,341
BUCKLE FOR A SAFETY BELT

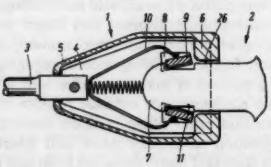
Kurt Krautz, Rosengarten, and Erhard Ender, Hamburg-Lurup, both of Fed. Rep. of Germany, assignors to Autoslug Stakupress GmbH & Co., Fed. Rep. of Germany

Filed Apr. 25, 1980, Ser. No. 143,794

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929394

Int. Cl.³ A44B *11/26*

U.S. Cl. 24—230 AT **3 Claims**



1. A safety belt buckle assembly having an insertable tongue plate and a tongue lock with a pair of opposed spaced plates forming a guide channel therebetween for forward longitudinal insertion of the tongue plate into and rearward longitudinal withdrawal of the tongue plate from a locking position therein, the pair of opposed plates having laterally spaced pairs of opposed latch member openings on opposite sides of the longitudinal axis of insertion and withdrawal of the tongue plate, a pair of swivel members having latching members extending across the guide channel and received within the pairs of opposed latch member openings respectively for engagement by the tongue plate upon longitudinal insertion thereof into the guide channel, the pairs of opposed openings being contoured to provide pairs of aligned generally forwardly facing pivot shoulders for engagement by the latch members for lateral pivotal movement of the swivel members about axes symmetrically located relative to said longitudinal axis, spring means pivotally biasing the swivel members inwardly toward each other to inner pivotal locking positions thereof, the latching members and tongue plate having, with the tongue plate inserted to its locking position and the latching members in their inner pivotal locking positions, pairs of longitudinally opposed locking shoulders for latching the tongue plate against rearward longitudinal withdrawal from the tongue lock, the swivel members having respective lever members, with respective laterally spaced release followers longitudinally forwardly of the locking shoulders of the latching members and means coacting to provide for combined pivotal operation of the swivel members, and a lock release slide longitudinally reciprocable for engaging the release followers and pivot the swivel members outwardly from their inner locking positions to release the tongue plate.

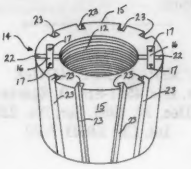
4,334,342
CASING HANGER AND STABILIZER

Gregory G. Hall, 7800 Youree Dr., Apt. 231, Shreveport, La. 71105

Filed Feb. 1, 1980, Ser. No. 117,392

Int. Cl.³ F16L *21/00*; A44B *21/00*

U.S. Cl. 24—263 D **5 Claims**



1. A casing hanger and stabilizer comprising a pair of matching, wedge-shaped slip segments characterized by a straight taper from a selected maximum diameter at the top thereof to a selected minimum diameter at the bottom, each of said slip segments having a top surface and an internal bore in matching relationship to the other, and provided with threads in said internal bore, and further provided with a plurality of slots in the longitudinal external surface thereof, and a pair of plate slot apertures in the top surface of said slip segments, a pair of plates in registration with said plate slot apertures, and cooperating plate bolts for removably joining said plates to said slip segments.

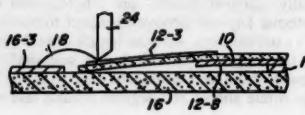
4,334,343
METHOD OF MAKING CRYSTAL MOUNTING AND CONNECTION ARRANGEMENT

Emory Wakat, Jr., Plantation; Lawrence N. Dworsky, Coral Springs; Leo V. Krolak, Plantation; Jeffery A. Whalin, Palm Springs, all of Fla., and Harold W. Mech, Bloomingdale, Ill., assignors to Motorola Inc., Schaumburg, Ill.

Division of Ser. No. 33,774, Apr. 27, 1979, Pat. No. 4,282,454. This application Aug. 25, 1980, Ser. No. 180,761

Int. Cl.³ H01L *41/22*

U.S. Cl. 29—25.35 **3 Claims**



1. A method of supporting and making connections to a crystal plate as for use in an electronic device and comprising the steps of:

providing an insulating base member;

forming on said base member a plurality of conductive areas;

attaching a low insulating pedestal to said base member;

forming at least one conductive area extending from the upper surface of said pedestal and along a portion of the side of said pedestal to contact respective ones of the conductive areas on the base member;

providing a crystal plate and conductive areas on said plate, a first area being formed on a first surface of the plate, and others of said areas being formed on a second surface and

extending toward the edge of said plate each pair of areas having opposed, active portions;

fixedly attaching said plate to said pedestal with said first conductive area on said plate making electrical contact with said conductive area on said pedestal;

wire bonding one end of each of a plurality of wires to respective ones of said conductive areas on said base member;

bending down respective edge portions of said plate to mechanically contact said base member;

making a wire bond with the other end of each of said wires to respective ones of said conductive areas on the second surface of said crystal plate while the plate is supported by the base member; and

releasing the pressure on said plate to allow the plate to resume planar form.

4,334,344

CONTROLLED DEFLECTION ROLL

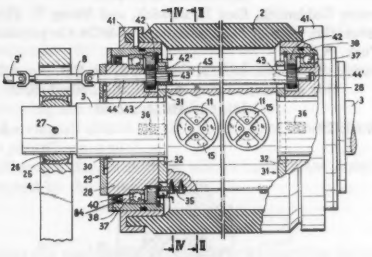
Mario Biondetti, Schio, Italy, assignor to Escher Wyss Ltd., Zurich, Switzerland

Filed Sep. 9, 1980, Ser. No. 185,530

Claims priority, application Switzerland, Sep. 19, 1979, 8451/79

Int. Cl.³ B21B *13/02*

U.S. Cl. 29—116 AD **7 Claims**



1. A controlled deflection roll comprising:

a stationary roll support;

a roll shell;

means for mounting said roll shell to be rotatable about said stationary roll support;

at least one support arrangement for supporting the roll shell upon the roll support;

said roll shell having opposite end regions;

a respective substantially ring-shaped closure element provided for each end region of said roll shell;

means for rotatably mounting each said closure element in said roll shell;

sealing means provided for said roll shell;

each closure element being provided with an opening surrounding the related end of the roll shell in spaced relationship such that said roll shell together with said sealing means is movable in relation to the roll support in a number of radial directions;

a toothed rim having internal teeth provided for said roll shell;

a pinion having pinion teeth meshing with said internal teeth of said toothed rim;

a drive shaft with which there is connected said pinion;

said drive shaft cooperating with a related one of said closure elements and extending through said related closure element;

a torque coupling serving to transmit a torque for connecting the closure element with the roll support; and

said torque coupling preventing rotation of the closure element relative to the roll support but enabling parallel displacement of such closure element in relation to the roll support.

4,334,345

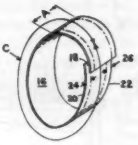
METHODS FOR LINING THE INTERNAL WALLS OF A CONDUIT FOR CONVEYING FLUID CARRYING MARINE FOULING ORGANISMS WITH A LINER OF ANTI-FOULING MATERIAL

Richard H. Jenks, Sauquoit, N.Y., assignor to Revere Copper and Brass Incorporated, New York, N.Y.

Division of Ser. No. 14,486, Feb. 23, 1979, Pat. No. 4,257,459. This application May 30, 1980, Ser. No. 155,158

Int. Cl.³ B21D *53/00*; B21K *29/00*; B23P *15/26*

U.S. Cl. 29—157 R **1 Claim**



1. The method of lining the internal walls of a sea water conveying conduit with anti-fouling material which material prevents marine fouling organisms carried by the sea water from contacting said internal walls and which material also upon exposure to said sea water provides a slow solution for substantially preventing said marine fouling organisms from adhering thereto, comprising the steps of:

providing a plurality of generally annularly shaped bands of anti-fouling material, and

providing each of said bands with predetermined circumferential and axial lengths and with a split across the entire axial length thereof to permit the radially outward expansion of the band, and terminating each of said bands axially in a pair of spaced apart, generally circular transverse edges, each of said bands having predetermined outer axial portions adjacent said generally circular transverse edges;

inserting said plurality of bands of anti-fouling material into said conduit and aligning said bands axially internally of said conduit adjacent each other and positioning said aligned bands of anti-fouling material with their respective adjacent generally circular transverse edges adjacent each other and thereby forming generally circular edge lines transverse of said conduit;

providing a plurality of generally annularly shaped bands of predetermined material, providing each of said bands of predetermined material with a predetermined circumferential length substantially equal to the circumferential length of said bands of anti-fouling material and providing said bands of predetermined material with an axial length substantially less than said axial length of said bands of anti-fouling material, and providing said bands of predetermined material with a split across the entire axial length thereof to permit said bands of predetermined material to be expanded radially outwardly;

inserting said bands of predetermined material into said axially aligned bands of anti-fouling material and positioning each of said bands of predetermined material generally over one of said generally circular edge lines and overlying respective predetermined axial portions of said adjacent bands of said anti-fouling material;

expanding said bands of predetermined material radially outwardly to force at least said respective predetermined outer axial portions of said adjacent bands of anti-fouling material into tight engagement with said internal walls of said conduit and with sufficient force to prevent said

bands of anti-fouling material from moving with respect to said conduit upon said fluid flowing therethrough; and

maintaining said bands of predetermined material expanded radially outwardly.

4,334,346

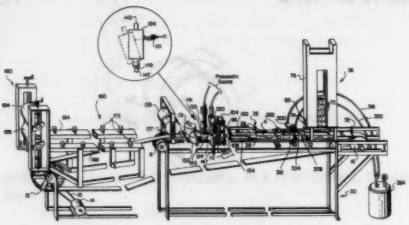
METHOD AND APPARATUS FOR FABRICATING STUDS, JOISTS AND THE LIKE

Keith A. Jensen, Sandy, Utah, assignor to A. Park Smoot, Murray and Reese J. Goodwin, Provo, both of, Utah

Filed Sep. 4, 1979, Ser. No. 72,349

Int. Cl.³ B23P *19/00, 21/00;* **B23Q** *15/00;* **B27F** *7/02*

U.S. Cl. 29—429 **26 Claims**



1. A method of manufacturing studs, joists, and the like which have a pair of side-by-side chords, and blocks disposed between the chords, said method including

(a) providing a conveying surface having a plurality of block holders spaced apart generally in a line along the direction of movement, each block holder including means for holding a block and for maintaining separation of the block from adjacent blocks and also including an upstanding finger disposed at the rear end of the holder,

(b) providing contacting elements on the conveying surface to be generally in line with the block holders for contacting and moving chords placed along each side of the line of block holders,

(c) providing a block holding bin adjacent to the conveying surface for holding a plurality of blocks in a stack, and moving the block holders past the bin so that each upstanding finger contacts the bottommost block in the bin and forces the block from the bin into the corresponding block holder so that at least two blocks are carried in respective adjacent block holders,

(d) placing in a generally parallel relationship a pair of chords on each side of a line of two or more block holders which are holding blocks so that the contacting elements contact the ends of the chords and move the chords,

(e) forcing the chords into contact with the blocks, and

(f) moving the chords and blocks through securing apparatus which secures the chords to the blocks.

12. Apparatus for use in assembling studs, joists, and the like which have a pair of side-by-side chords, and blocks disposed between the chords, said apparatus including

a conveying surface having a plurality of block holders positioned thereon and spaced apart generally in a line along the direction of movement, each block holder including means for holding a block in a fixed position on the conveying surface, and an upstanding finger disposed at the rear end of the holder,

a plurality of contacting elements positioned on the conveying surface and spaced apart generally in line with the block holders for contacting the rear ends of the chords placed on each side of the block holders to move the chords as the conveying surface is moved,

guide means disposed on each side of the line of travel of the blocks and chords for guiding and urging the chords into contact with the blocks,

block holding bin means disposed adjacent the conveying surface for holding a plurality of blocks in a stack, said bin means including

side walls for maintaining the blocks in a stack,

support rails disposed at the bottom of the side walls for supporting the blocks at the sides thereof and for allowing the bottommost block to slide forwardly of the bin means, and

a front wall joined to the side walls and having an opening at the bottom thereof of a size sufficient to allow the bottommost block in the stack to be slid forwardly of the bin means and out of the bin means while preventing the other blocks from sliding forwardly, and

securing means for driving fastening elements such as staples, nails or the like through the chords into the blocks.

4,334,347

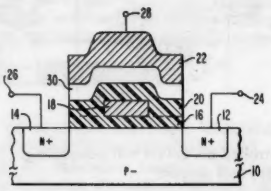
METHOD OF FORMING AN IMPROVED GATE MEMBER FOR A GATE INJECTED FLOATING GATE MEMORY DEVICE

Norman Goldsmith, East Brunswick, and Sheng T. Hsu, Lawrenceville, both of N.J., assignors to RCA Corporation, New York, N.Y.

Division of Ser. No. 86,313, Oct. 19, 1979, Pat. No. 4,253,106. This application Aug. 6, 1980, Ser. No. 175,757

Int. Cl.³ H01L *29/78*

U.S. Cl. 29—571 **6 Claims**



1. In a process for forming a floating gate storage device, the device having:

a. a body of semiconductor material with a pair of semiconductor regions of a first conductivity type embeded therein and spaced a given distance one from the other;

b. an intermediate semiconductor region of opposite conductivity type defining the space between the pair of regions; and

c. a floating gate structure having a floating gate member disposed over the intermediate region and insulated therefrom and a control gate member disposed over the floating gate member and insulated therefrom; an improved method of forming the gate structure, comprising the steps of:

growing a first insulating layer over at least the intermediate region;

forming a floating gate member on the first insulating layer over the intermediate region;

growing a second insulating layer over the gate member and the first insulating layer;

depositing a layer of semi-insulating polycrystalline silicon over the second insulating layer; and

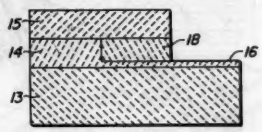
depositing a conductive control gate member over the semi-insulating layer.

4,334,348

RETRO-ETCH PROCESS FOR FORMING GATE ELECTRODES OF MOS INTEGRATED CIRCUITS

Dale T. Trenary, San Jose; Allen H. Frederick, Pacifica, both of Calif., and Robert M. Whelton, Paradise Valley, Ariz., assignors to Data General Corporation, Westboro, Mass.

Division of Ser. No. 170,833, Jul. 21, 1980. This application Mar. 5, 1981, Ser. No. 240,879
Int. Cl.³ H01L *21/22, 21/28*
U.S. Cl. 29—571 8 Claims



6. A method of forming a MOS transistor within a silicon body comprising:

A. forming a silicon dioxide layer upon the silicon body;

B. forming a silicon nitride layer upon the silicon dioxide layer;

C. forming a retro-etched area by etching the silicon dioxide layer to a predetermined area under the silicon nitride layer;

D. forming a polysilicon layer over the silicon body to substantially fill the retro-etched area;

E. removing the polysilicon as applied in step D except in the retro-etched area;

F. removing the remaining silicon nitride;

G. removing all silicon dioxide in the areas not covered by the polysilicon; and

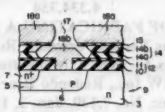
H. diffusing a dopant into the silicon body in the areas not covered by the polysilicon.

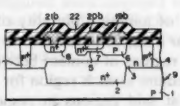
4,334,349

METHOD OF PRODUCING SEMICONDUCTOR DEVICE

Masaharu Aoyama; Jiro Ohshima, both of Yokohama, and Toshio Yonezawa, Yokosuka, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Jun. 3, 1980, Ser. No. 155,975
Claims priority, application Japan, Jun. 6, 1979, 54-71043
Int. Cl.³ H01L *21/225, 21/312;* B44C *1/22*
U.S. Cl. 29—579 14 Claims





1. A method of producing a semiconductor device, comprising the steps of:

(a) forming a first insulating layer comprising a lower silicon oxide film and an upper silicon nitride film on a surface of a semiconductor substrate;

(b) forming a contact hole through said first insulating layer;

(c) forming a second insulating layer consisting of silicon oxide on the first insulating layer;

(d) forming a third insulating layer consisting of silicon nitride on the second insulating layer;

(e) selectively removing the third insulating layer to form a mask used for forming a hole for an interconnection electrode;

(f) etching away the exposed portion of the second insulating layer by using the mask to form the hole for the interconnection electrode;

(g) forming a conductive material layer on the entire surface of the structure obtained by step (f), the contact hole formed in the first insulating layer being filled with the conductive material to allow the conductive material layer disposed on the first insulating layer to be connected to the semiconductor substrate; and

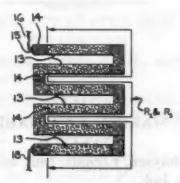
(h) removing the second insulating layer by etching to lift-off the third insulating layer and the conductive material layer laminated on the second insulating layer, the remaining conductive material layer providing the interconnection electrode.

4,334,350

METHOD UTILIZING A POROUS VITREOUS CARBON BODY PARTICULARLY FOR FLUID HEATING

Warren A. Rice, Dexter; Clarence S. Vinton, Ann Arbor; Charles H. Franklin, Ann Arbor, and Christopher J. Torbett, Ann Arbor, all of Mich., assignors to Chemotronics International, Inc. Shareholders, Ypsilanti, Mich.

Division of Ser. No. 928,051, Jul. 26, 1978, Pat. No. 4,220,846. This application Mar. 7, 1980, Ser. No. 128,191
Int. Cl.³ H05B *3/00*
U.S. Cl. 29—611 1 Claim



1. A method for the preparation of an electrical resistance element which comprises:

(a) shaping a rigid body of interconnected, multidirectional, continuous strands of reticulated vitreous carbon forming a rigid, porous, three dimensional skeletal structure to provide current conductive paths between at least two regions of the body, said body having been heat treated at least about 1800° C. in a non-reactive atmosphere; and

(b) mounting at least two electrical connector means to the body at the regions so that an electrical current can flow through the body.

4,334,351

NOVEL PTC DEVICES AND THEIR PREPARATION

Umesh K. Sopory, San Jose, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed May 19, 1980, Ser. No. 150,910
Int. Cl.³ H05B *3/00*
U.S. Cl. 29—611 18 Claims

1. A method of making a flexible electrical device which comprises

(a) an elongate flexible PTC element composed of a PTC conductive polymer composition which exhibits PTC behavior and which comprises

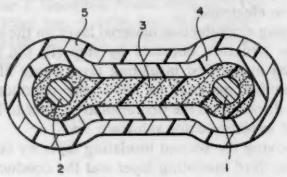
(i) a polymer component which comprises a mixture of a first crystalline polymer having a first melting point T_1

and a second crystalline polymer having a second melting point T_2 which is at least $(T_1+25)°$ C., and

(ii) a particulate filler component which has been dispersed in said polymer component and which comprises a conductive filler; and

(b) at least one metal electrode; which method comprises

(1) forming said PTC element by melt-shaping said conductive polymer composition adjacent said electrode so



that the electrode is in electrical contact with said PTC element;

(2) forming on the surface of said PTC element a layer of a second polymeric composition having substantially greater flexibility at 23° C. than said PTC composition; and

(3) heating said layer to cause melt fusion of said second polymeric composition and said PTC composition at the interface between said layer and said PTC element.

4,334,352

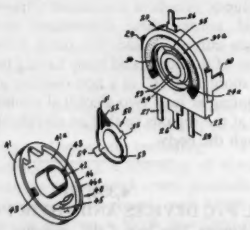
METHOD OF MAKING A VARIABLE RESISTANCE CONTROL

John D. VanBenthuysen, Elkhart, Ind., assignor to CTS Corporation, Elkhart, Ind.

Division of Ser. No. 899,116, Apr. 24, 1978, Pat. No. 4,210,896. This application Nov. 16, 1979, Ser. No. 94,846

Int. Cl.³ H01C *17/06*

U.S. Cl. 29—620 **7 Claims**



1. A method for making a variable resistance control comprising the steps of:

(a) blanking terminals and a structure plate having a collector and stop means;

(b) molding a body onto the structure plate;

(c) depositing a resistance element onto a surface of the body and onto portions of the terminals; and

(d) attaching a moveable contactor means in cooperative engagement with the resistance element to effect a variable resistance control.

4,334,353

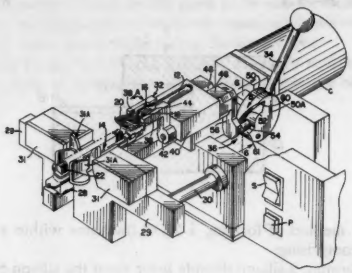
APPARATUS FOR ASSEMBLING ELECTRICAL CABLES TO ELECTRICAL CONNECTORS

Harley R. Holt, Forest Park, Ill., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Mar. 14, 1980, Ser. No. 130,295

Int. Cl.³ H01R *43/04*

U.S. Cl. 29—753 **16 Claims**



1. Apparatus for assembling electrical cables, or the like, to an electrical connector which has cable clamp means for clamping a cable in position with its conductors terminated to contact means on the connector, comprising:

a base having locator means for properly locating a connector in position for receiving an electrical cable;

a pair of jaw members mounted on said base for movement in a given direction toward and away from a properly positioned connector to engage said cable clamp means for clamping a cable to provide strain relief therefor;

an actuator member mounted on said base for moving said jaw members;

motion transmitting means operatively associated between said actuator member and only one of said jaw members for moving said one jaw member in response to movement of said actuator member; and

means interconnecting said jaw members for conjoint movement thereof in unison toward and away from said cable clamp means in response to movement of said actuator member.

4,334,354

METHOD OF FABRICATING A SOLAR ARRAY

Werner Luft, Palos Verdes Peninsula; Robert E. Kennedy, Torrance, and Hans G. Mesch, Manhattan Beach, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Continuation of Ser. No. 7,130, Jan. 2, 1979, abandoned, which is a division of Ser. No. 814,949, Jul. 12, 1977, Pat. No. 4,154,998. This application Oct. 20, 1980, Ser. No. 198,384

Int. Cl.³ H05K *3/32, 3/34*

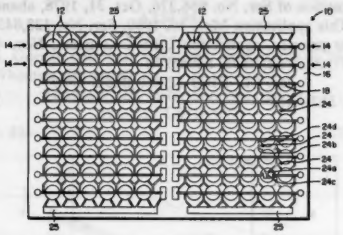
U.S. Cl. 29—840 **8 Claims**

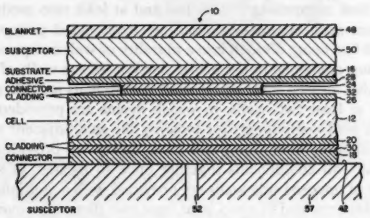
1. The method of joining a plurality of assembled components such as solar cells, cell connectors, and a cell-mounting substrate, having regions of contact between the components and a bonding medium at each region for joining the contacting components at said regions in response to momentary heating of the medium to a bonding temperature, said method comprising the steps of:

placing metallic susceptors in thermal conductive relation to said regions, and

exposing the susceptors to a high frequency electromagnetic field to effect induction heating of said susceptors and thereby heating of said bonding medium at said contact regions to its bonding temperatures by thermal conduc-

tion from said susceptors while retaining said components and susceptors in firm contact with one another to effect





bonding of the contacting components to one another at said regions.

4,334,355

SPAGHETTI EATING UTENSIL

H. Worthington Kalt, 173 N. Mountain Ave., Montclair, N.J. 07042

Filed Feb. 19, 1981, Ser. No. 236,004
Int. Cl.³ A47J *43/28*
U.S. Cl. 30—322 **3 Claims**

1. A fork for simplifying the operation of picking up spaghetti, comprising:
(a) an elongated handle with a length much greater than its diameter;
(b) support plate means disposed at one end of said elongated handle;
(c) prongs disposed at the end of said support plate means opposite from said elongated handle, said prongs being oriented with their length substantially parallel to the axis of said elongated handle; and
(d) a spirally configured track disposed along the length of said elongated handle, said spirally configured track being of variable pitch, with more turns per unit length adjacent said support plate means.

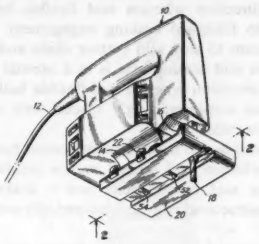
4,334,356

ANTI-MAR BASE FOR SABER- AND BAYONET-TYPE SAWS AND THE LIKE

Peter Krosunger, 19 Clinton St., Port Jefferson, N.Y. 11776

Filed Jul. 14, 1980, Ser. No. 168,868
Int. Cl.³ B27B *11/00*
U.S. Cl. 30—374 **6 Claims**

1. In combination with a saw including a rigid base having a front, rear and two sides, a source of motive power on said base, a blade coupled to said source of motive power and extending below said base, an anti-mar base, and means on said anti-mar base for detachably holding the same on said rigid base, said means including clips resiliently engaging the sides of the base, the anti-mar base including a generally planar section in face-to-face contact with the lower surface of the rigid base, the anti-mar base including an upwardly turned toe section to brace against the front of said rigid base, said blade



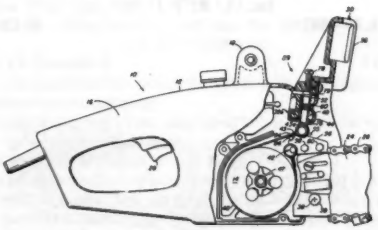
extending through said rigid base and said anti-mar base being provided with an opening through which said blade passes, said anti-mar base being provided with a slot forming a keyhole with said opening and extending forwardly thereof, the anti-mar base being provided with a downwardly open longitudinally extending groove into which said opening and slot open, and strips extending transversely through said anti-mar base and supporting said clips, the strips being exposed in said groove.

4,334,357

SAFETY BRAKING APPARATUS FOR A PORTABLE CHAIN SAW

John Baricevic, Redondo Beach, Calif., assignor to Black & Decker Inc., Newark, Del.

PCT No. PCT/US80/01013, § 371 Date Oct. 30, 1980, § 102(e) Date Oct. 30, 1980, PCT Pub. No. WO82/00438, PCT Pub. Date Feb. 18, 1982
PCT Filed Aug. 8, 1980, Ser. No. 201,413
Int. Cl.³ B27B *17/00*
U.S. Cl. 30—381 **11 Claims**



1. In a manually portable chain saw having
a housing with a gripping handle,
a cutting chain,
a support bar projecting forwardly from the housing for supporting the cutting chain for endless movement, and
a motive force means carried by the housing for driving the cutting chain,
a safety brake means for stopping movement of the cutting chain comprising:
a sensing arm mounted on said housing for swinging movement, a portion of said sensing arm being located forward of said gripping handle during operation of the chain saw

and arranged to be swung in a forward direction in response to being struck by an operator of the chain saw,

a flexible brake band,

means for anchoring a first end of said brake band,

releasable bistate means for capturing a second end of said brake band for longitudinal and transverse movement in response to movement of said sensing arm,

said second end in said longitudinal movement direction having a first state when said sensing arm is in said forward direction wherein said flexible brake band moves into frictional braking engagement with said motive means to stop said cutting chain and a second state when said sensing arm is in a normal operating rearward direction wherein said flexible brake band is loosely and non-interferingly spaced with respect to said motive means,

said second end in said transverse movement having a rest position wherein said second end is yieldingly constrained in said second state and a brake position wherein said second end can unimpededly move to said first state,

a first spring arranged for urging said sensing arm to move in the forward direction for effecting movement of said second end to said first state for braking movement, and

said bistate means having

a fixed latch plate having an edge surface mounted in operative relation to said movable second end, and

a second spring arranged to provide a yieldable transversely directed latching force for urging said flexible brake band, at said second end, toward said latch plate, whereby, in said second state the yieldable force of said second spring effects resilient resistance to movement of said second end toward said first state along said edge surface.

4,334,358

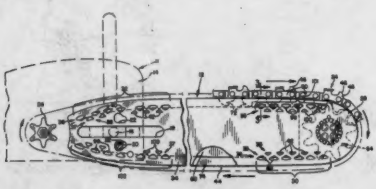
VIBRATION DAMPENED SAW BARS

Michael J. Reynolds, Oregon City, Oreg., assignor to Omark Industries, Inc., Portland, Oreg.

Filed Aug. 18, 1980, Ser. No. 179,086

Int. Cl.³ B27B *17/04*

U.S. Cl. 30—387 **30 Claims**



1. A chain saw bar having rail portions and a body portion bounded by the rail portions, the rail portions having high impact areas,

the bar having vibration dampening portions interposed between the rail portions and the inner body portion to retard transmission of vibrations from the rail portions to the body portion, said vibration dampening portions comprising rows of slots wherein said rows are generally parallel to the adjacent portions of the rail portions and the slots overlap one another such that perpendicular joinder of said rail portions to said body portion by noncompliant saw bar zones is avoided in said vibration dampening portions.

4,334,359

CONTAINERS

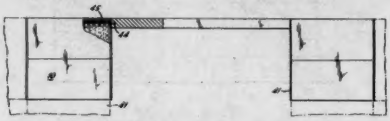
Ernest J. Kump, 6-7 Grosvenor Pl., London, SW1, England

Continuation of Ser. No. 956,276, Oct. 31, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 128,843

Claims priority, application United Kingdom, Nov. 4, 1977, 46013/77; May 31, 1978, 24986/78

Int. Cl.³ F16B *12/00*; B65D *6/00*

U.S. Cl. 312—111 **1 Claim**



1. A desk comprising a desk top and at least two modular containers each comprising a hollow open-ended polygonal box, said box being divided into a plurality of wall components along lines contained in the planar portions of the walls of the box so that at least some of the wall components include portions of at least two walls, in which means are provided on adjacent wall components for locating the said adjacent wall components together along said lines, means are provided to lock said wall components together once so located, at least one pair of opposed side walls are provided with a multiplicity of nodules arranged in rows in at least two directions over at least a substantial portion of the inside surfaces of said opposed walls for locating shelves, drawers and the like within the container in any of a number of positions, and means for connecting the disk top to said containers comprising planar members slidable between rows of nodules within the containers and engageable in slots formed in the ends of the desk top.

4,334,360

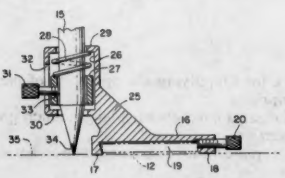
PENCIL MARKING JIG

Anthony G. Burns, c/o George Spector 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of, New York, N.Y. 10007

Filed May 12, 1980, Ser. No. 149,240

Int. Cl.³ B43L *13/02*

U.S. Cl. 33—42 **1 Claim**



1. A pencil marking jig, comprising in combination, a clamp integral with a collar holding a pencil, said clamp being adjustably locked along a calibrated rule of a carpenter's square, and said collar being positioned along an axis perpendicular to a flat plane of said rule, and aligned with one side edge of said clamp wherein said clamp comprises a flat plate with parallel opposite side edges projecting from said plate for providing a groove therebetween receiving said rule adjustably and a set screw through one said edge for locking said clamp at a desired location, including means biasing said pencil vertically towards said plane wherein said means includes a ring slidable in said collar, a pencil extending vertically through said ring, said collar provided with upper and lower stops at the ends thereof to hold said ring therein, a spring affixed in said collar between said upper stop and said ring to urge said ring and pencil downwardly, an elongated slot in said collar and a set

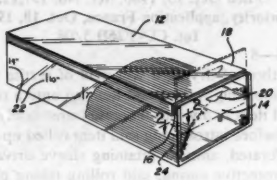
screw extending through said slot and threadably engaging a hole in said ring for locking said ring and pencil together.

4,334,361

PASTA GAUGE

Carol A. Gorski, and Saul B. Gorski, both of 123 S. Blanchard St., Wheaton, Ill. 60187

Filed Apr. 23, 1979, Ser. No. 32,509
Int. Cl.³ G01B 5/00
U.S. Cl. 33—174 T **2 Claims**



2. A pasta gauge and container for selecting a predetermined portion of a plurality of elongated, dried pasta members from a larger bundle of elongated, dried pasta members of substantially equal length comprising

an elongated container which is rectangular in cross-section and has planar bottom, top and side walls for holding said larger bundle of pasta members,

said container being open at one end and closed at the other end,

a plurality of portion indicating graduations provided on one of said side walls in proximity to said one end,

a plurality of length indicating graduations provided on one of said walls to show the length of the pasta members disposed in said container,

at least said one of said walls being transparent in the vicinity of said length indicating graduations,

a planar closure member slidably mounted over said one end to enable the selective positioning of said closure member at a plurality of predetermined portion selecting positions corresponding to predetermined open areas at said one-end uncovered by said closure member,

the distance between said ends being greater than the respective lengths of said pasta members, and

the diagonal distance across said container being substantially less than said respective lengths of said pasta members to hold said pasta members in substantially mutually parallel relationship in said container.

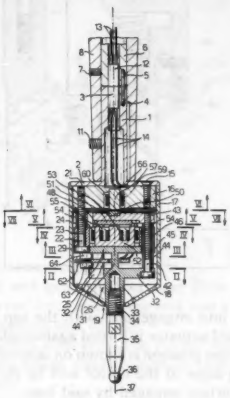
4,334,362

BIDIMENSIONAL TRACER OF MACHINE TOOLS OR MEASURING MACHINES

Francesco Germano, Turin, and Ugo Cavicchioli, Borgaro Torinese, both of Italy, assignors to DEA Digital Electronic Automation SpA, Turin, Italy

Filed May 3, 1979, Ser. No. 35,591
Claims priority, application Italy, May 9, 1978, 68052 A/78
Int. Cl.³ G01B 7/02
U.S. Cl. 33—174 L **14 Claims**

1. A bidimensional tracer for machine tools or measuring machines, comprising a body for connection to said machine, a detection bar extending outwardly from said connection body arranged to come into contact with a surface, and means for emitting signals of detection of the movements of said detection bar along two orthogonal directions produced by the contact of the detection bar with said surface, wherein said means comprises two separate detector elements for simultaneously detecting said movements along said two directions, said two detector elements comprising each a portion stationary relative to said connection body and a portion movable as a function of said movements of said detection bar, wherein said movable portion of said detector elements is rigidly connected to said detection bar by means of a first portion of a one-piece intermediate body, of which a second portion is rigidly connected to said connection body, the connection between said first and said second portions of said intermediate body being obtained by means of a third portion of reduced cross section in a plane parallel to the plane of said two orthogonal directions, relative to the cross sections of said first and said second portions, so as to allow a resilient movement of



said first portion relative to said second portion when said detection bar comes into contact with said surface,

said tracer further comprising a support body, said movable portions of said detector elements being rigidly fastened to said support body, and means for rigidly connecting said support body in a spaced apart relation to the first portion of the intermediate body, said last mentioned means three equal height columns extending between said support body and the first portion of the intermediate body.

4,334,363

TOOL SETTING APPARATUS

Noel J. Stegemeyer, Pewaukee, and Vernon W. Naker, New Berlin, both of Wis., assignors to Kearney & Trecker Corporation, West Allis, Wis.

Filed Nov. 17, 1980, Ser. No. 207,256
Int. Cl.³ G01B 3/30
U.S. Cl. 33—185 R **7 Claims**

1. An apparatus for setting the position of a cutting tool in a machine tool comprising:

a support having a base adapted to be placed on the worktable of the machine tool;

an indicator mounted on said support;

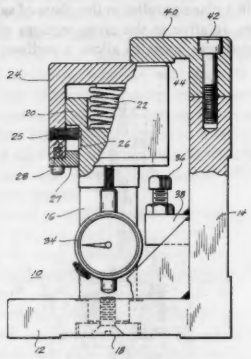
an actuator carried by said support and positioned to actuate said indicator, said actuator having a top surface that is parallel to said base and which moves in a path perpendicular to the base between a home position a known distance from the bottom surface of said base and an outward position further from said base bottom surface than said home position;

means disposed between said actuator and the base of said support for biasing said actuator means away from said home position and away from said base;

means attached to said indicator on said indicator when said actuator is at said home position; and

setting means affixed to said support for movement between a first position at which said setting means engages said actuator and biases said actuator to said home position so that said top surface of said actuator is at the known distance from the bottom surface of said base and a second

position at which said setting means is still in engagement with said support but disengaged from said actuator enabling said actuator to be biased towards said outer position and away from said home position and away from said base so that when the cutting edge of the cutting tool



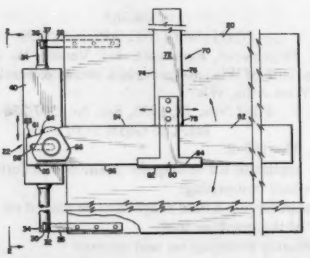
is brought into engagement with the top surface of said actuator, said actuator is forced against said biasing means until the home position is shown on said indicator wherein the cutting edge of the cutter will be the same distance from any surface engaged by said base.

4,334,364

ADJUSTABLE STRAIGHT EDGED DEVICE FOR USE WITH DRAFTING BOARD

John E. Nelson, Mountaintop, Pa., assignor to Eberhard Faber, Inc., Wilkes-Barre, Pa.

Filed Jan. 24, 1980, Ser. No. 115,047
Int. Cl.³ B43L *13/02*
U.S. Cl. 33—438 **8 Claims**



1. An adjustable straight edged device for use with a drafting board, comprising:
- a support bar;
- means for attaching said support bar to the drafting board in a position parallel to one of its sides;
- a carrier plate slidably mounted for movement along said support bar and provided with a pivot pin and three guide pins spaced apart thereon; and
- a straight edged blade including an elongated slot extending coaxially with a portion of the longitudinal axis of said blade, formed at an end thereof, for receiving said pivot pin to slidably and pivotally attach said blade to said carrier plate, one end edge portion of said blade forming an acute angle with the longitudinal axis of said blade in alignment with said elongated slot with two of said guide pins being disposed to abut the angled edge portion while the third of said pins abuts an opposite edge of said blade to maintain said blade in a horizontal orientation across the drafting board extending at a perpendicular angle from said support bar when the edges thereof abut said pins.

4,334,365

METHODS OF DRYING WET ITEMS OF TEXTILE MATERIALS

Frantz M. J. Boucraut, Troyes, France, assignor to Valton S.A., Troyes, France

Filed Oct. 15, 1980, Ser. No. 197,122
Claims priority, application France, Oct. 18, 1979, 79 25912
Int. Cl.³ F26B *5/08*
U.S. Cl. 34—8 **8 Claims**

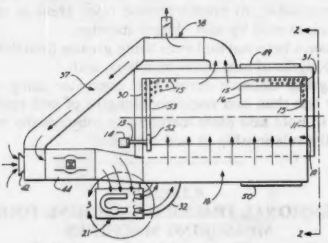
1. A method of drying a wet item of textile material, said method comprising rolling said item up onto a roller and subjecting said item to a width-increase transversely thereof of at least 15% before introducing said item rolled up on said roller into a perforated, annular retaining sleeve drivable to rotate within a protective casing, said rolling taking place at a rate such that the item is not subjected to tension longitudinally thereof, said rolling being continued until a series of layers of said item are on said roller, and said item and roller has an external diameter substantially equal to the internal diameter of said retaining sleeve, whereby upon subjecting said item on said roller to a centrifugal force, outermost layers of said item are urged against said retaining sleeve and inner layers are pressed against said outermost layers to dry said item.

4,334,366

SONIC ENERGY PERFORATED DRUM FOR ROTARY DRYERS

Raymond M. Lockwood, Palo Alto, Calif., assignor to Jetsonic Processes, Ltd., Sacramento, Calif.

Filed Sep. 24, 1980, Ser. No. 190,296
Int. Cl.³ F26B *5/02*
U.S. Cl. 34—17 **27 Claims**



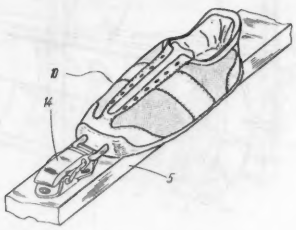
1. Apparatus for drying particles, the apparatus comprising:
- a cylindrical drum having a substantially horizontal axis and a perforated surface extending circumferentially of the drum over a selected portion of the length of the drum;
- means for introducing moist particles into the drum;
- means for rotating the drum about the axis to tumble the particles inside the drum;
- a stationary gas plenum structure cooperating with a selected portion of the drum circumference and length in association with the drum perforated surface, for supply of gas into the drum via the perforated surface during rotation of the drum;
- a pulse jet engine arranged to supply pulsating hot gas and broad band sonic energy to the plenum, whereby such gas and broad band sonic energy enter the drum and contact the tumbling particles to cause them to dry; and
- means for withdrawing dry particles from the drum.

4,334,367

PROCESS FOR MANUFACTURING A SPORTS SHOE AND THE SHOE ITSELF

Georges P. J. Salomon, Annecy, France, assignor to Ets. Francois Salomon et Fils, S. A., Annecy, France

Filed Dec. 12, 1979, Ser. No. 103,066
Claims priority, application France, Dec. 13, 1978, 78 35079
Int. Cl.[3] A43B 5/04; A43D 9/00
U.S. Cl. 36—117 35 Claims



1. Process of making a boot or shoe for use in sports comprising an upper portion, a walking sole joined at its periphery to said upper portion at a junction, an intermediate element positioned between said walking sole and the region adapted to receive the foot of the user, and at least one portion projecting beyond said junction to the outside of said boot or shoe, said process comprising the steps of:

(a) integrating said projecting portion and said intermediate element to form an integral assembly; and

(b) integrating said integrating assembly with said upper portion and said walking sole to form said shoe.

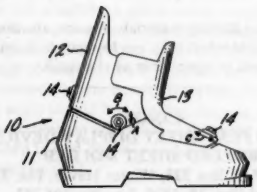
7. The process as defined by claim 1 wherein said shoe or boot comprises a first sole and said process comprises folding the lower front of said upper portion between said first sole and said intermediate element.

4,334,368

ADJUSTABLE FASTENER FOR PLASTIC SKI BOOTS

Edward L. Chalmers, II, and Wayne L. Shugart, Sr., both of Boulder, Colo., assignors to Lange International S.A., Fribourg, Switzerland

Filed Oct. 31, 1980, Ser. No. 202,453
Int. Cl.[3] A43B 5/04
U.S. Cl. 36—121 15 Claims



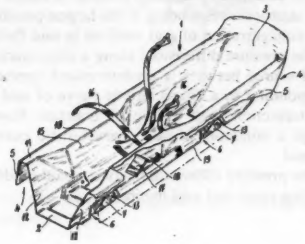
1. An adjustable fastener for securing one portion of a plastic ski boot to another portion in a manner that facilitates selective and limited relative movement between the two portions comprising anchor means mounted in the one boot portion and adapted to extend through a slot in the other boot portion, friction means through which the anchor means extends, and a clamping device cooperating with the anchor means for urging the boot portions together and forcing the friction means into engagement with the one boot portion to secure the two boot portions in a selected position after desired relative movement.

4,334,369

SKI-SHOE

Paul H. Brunel, "Le Meleze"-Residence Charriere Blanche, Ecully (Rhone), France

Filed Sep. 3, 1980, Ser. No. 183,924
Claims priority, application France, Sep. 5, 1979, 79 22722
Int. Cl.[3] A43B 5/04
U.S. Cl. 36—124 10 Claims



1. A ski-shoe comprising:

an elongated and generally flat base plate having an upwardly curved front end, a rear end, and a pair of longitudinally extending side edges;

respective upright sides extending the full length of said base plate having lower edges joined to said side edges and upper edges;

a pair of side rails extending outwardly and downwardly from said upper edges of said sides and having lower edges lying above said base plate, said side rails forming downwardly open channels with the respective sides;

means for securing the foot of a user to said base plate between said ends and between said sides;

at least one flap underneath said base plate; and

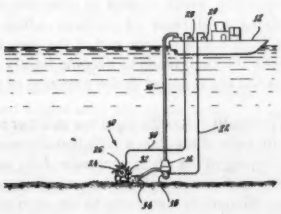
pivot means for mounting said flap for pivotal movement about a horizontal axis transverse to said sides between said flap and said front end relative to said base part and sides between an up position lying generally against said base plate and a down position extending transversely downwardly from said base plate.

4,334,370

METHOD OF TRANSPORTING FLOWABLE MEDIA OF CHANGING CONSISTENCIES

Kurt Holzenberger, Frankenthal/Pfalz, Fed. Rep. of Germany, assignor to Klein, Schanzlin & Becker Aktiengesellschaft, Frankenthal/Pfalz, Fed. Rep. of Germany

Filed Apr. 17, 1980, Ser. No. 140,967
Claims priority, application Fed. Rep. of Germany, Apr. 24, 1979, 2916469
Int. Cl.[3] E02F 3/88
U.S. Cl. 37—195 12 Claims



1. A method of transporting a flowable medium in a carrier fluid, especially a flowable solid such as manganese nodules and the like obtained in ocean bottom mining, comprising

conveying said medium and fluid from a pressurized source of the same along an ascending path at least generally in accordance with a characteristic control line along which the following relation is satisifed:

$$\Delta p_1 - \Delta p_2 \cong \Delta p_3$$

where

Δp_1 is the calculated maximum possible pressure reduction in said source corresponding to the largest possible change in the concentration of said medium in said fluid,

Δp_2 is the pressure differential along a characteristic curve of said source between a predetermined operating point corresponding to a characteristic curve of said path and the intersection with a line of constant flow passing through a minimum of said characteristic curve of said path, and

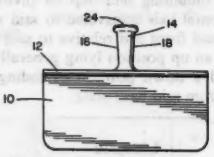
Δp_3 is the pressure differential between said predetermined operating point and said minimum.

4,334,371

UNITARY HANDLE AND DISPLAY TAG

Gordon R. Winders, and Fredric M. MacKay, both of Raleigh, N.C., assignors to Rheem Manufacturing Company, New York, N.Y.

Filed Mar. 13, 1980, Ser. No. 130,037
Int. Cl.³ G09F *3/16*
U.S. Cl. 40—2 R **5 Claims**



1. An improved display tag and handle for attachment by a metal clip to a casing or bagged product, said tag comprising in combination:

a flat planar flexible display panel having at least one straight edge,

a rib defining said straight edge, said panel projecting from one side of the rib; and

a stem projecting from the other side of the rib in the opposite direction from the panel, said stem being adapted to be clipped by a clip which is used to close the casing, said stem defining a plurality of surfaces which gradually converge from the distal free end of the stem toward the rib whereby the stem tends to become tightly wedged in the clip as the tag is pulled in the direction of the rib and panel;

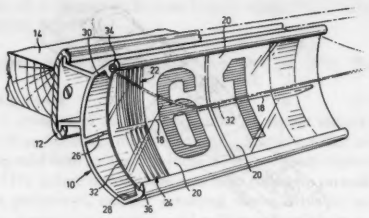
said rib is a generally inflexible rigid bar member and extends on opposite sides of the stem a sufficient distance to permit manual gripping of the rib on each side of the stem, for use as a handle, said stem is defined by a width dimension and a thickness dimension transverse to the stem and a length dimension generally perpendicular to the rib, said width dimension and said thickness dimension decreasing from a maximum adjacent the end of the stem to a minimum adjacent the connection of the stem to the rib, and a molded knob at the distal end of the stem.

4,334,372

MOVABLE WEB VARIABLE EXHIBITOR

Jack E. Colmar, 106 Marchington Clr., Scarborough, Ontario, Canada

Continuation-in-part of Ser. No. 127,890, Mar. 6, 1980, abandoned. This application May 4, 1981, Ser. No. 259,902
Int. Cl.³ G09F *3/18*
U.S. Cl. 40—16.2 **1 Claim**



1. A display device comprising:

a strip of flexible sheet material formed with a series of transverse folds to divide it into panels of equal size, the panels being arranged in two stacks, the top panel of each stack being adjacent panels joined at the fold line between them;

a housing for said panels having two retainer channels the outside edge of one of said stacks being contained by one retainer channel and the outside edge of the other of said stacks being contained by the other of said channels;

said housing having a support bar between said retainer channels underlying said fold line between the top panel of each of said stacks;

said retainer channels being spaced to hold the top panels of each stack with said fold line between the top panel of each of said stacks against said support whereby to present the top panels to open view;

said support bar having a height greater than the edge thickness of the stack of panels beneath it and greater than the depth of said retainer channels; the plane of the upper edge of the retainer channels being spaced above the upper edge of said support bar whereby to relax the panels in said stacks and urge the fold line between the top panel of each of the stacks against said support bar and provide for the manual manipulation of the top panel in one stack to move said fold line between the top panel of both stacks from the support a distance to pull the top panel of the other stack from its retainer channel, said top panel so removed from one retainer channel being insertable in the other retainer channel to display two different panels of said strip as top panels to open view;

said panels having display materials thereon, the display materials being visible when they are top panels in said stacks in said housing and in open view as aforesaid.

4,334,373

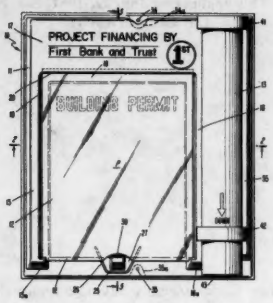
COMBINED FLAT SHEET DISPLAY DEVICE AND ROLLED SHEET HOLDER

Carl N. Bryan, P.O. Box 325, Winter Haven, Fla. 33880

Filed Dec. 19, 1979, Ser. No. 105,283
Int. Cl.³ G09F *3/18, 11/18*
U.S. Cl. 40—19 **3 Claims**

1. A combination flat sheet display and rolled sheet holder device adapted for vertical mounting outdoors comprising a base member, said base member being adapted to receive said flat sheet for display, means to retain said flat sheet on said base member, and holding means positioned on base member to hold said rolled sheet separate from said flat sheet, said holding means being removable from said device for receiving said rolled sheet, said retainer means including a raised frame on said base member including side pieces and a translucent cover within said frame adapted to cover said flat sheet, said base

member being an integral sheet of molded plastic, said frame being formed by raised molded areas on said plastic sheet, and said frame serving to reinforce said plastic sheet, a raised reinforcement rail extending along the side of base member opposite said frame, said holding means for said rolled sheet being positioned between said rail and the adjacent side piece of said frame.

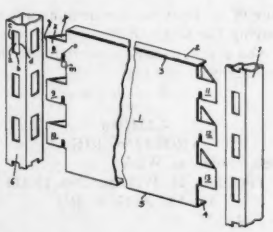


4,334,374

MEANS FOR ATTACHING A PANEL TO AN UPRIGHT

William S. Spamer, Roswell, and Robert C. Barker, Lilburn, both of Ga., assignors to The Mead Corporation, Dayton, Ohio

Filed Mar. 26, 1981, Ser. No. 247,765
Int. Cl.[3] G09F *15/00*
U.S. Cl. 40—606 9 Claims



1. Means for attaching a panel to an upright comprising an upright, at least one aperture formed in said upright, a panel disposed adjacent said upright, a first bracket element joined to one side edge of said panel, a second bracket element joined to said first bracket element remote from said panel and disposed at an acute angle to said first bracket element, a pair of notches formed respectively in said bracket elements, and said notches being disposed in said aperture and in an interlocking relationship with said upright.

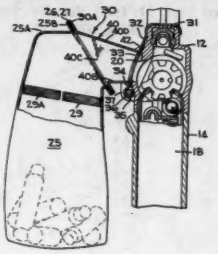
4,334,375

APPARATUS FOR COLLECTING CARTRIDGE CASINGS

Marvin C. Olson, San Jose, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed Jan. 28, 1980, Ser. No. 116,331
Int. Cl.[3] F41C *27/00*
U.S. Cl. 42—1 T 7 Claims

1. Apparatus for collecting empty casings discharged through an ejection port in a wall of a gun comprising a container, means for attaching the entrance end of said container to the section of the wall of the gun surrounding the ejection port, and means for establishing a gas-tight seal between the wall of said gun around the ejection port and the entrance end of said container.



4,334,376

PERCUSSION CAP REMOVER

Jack M. Winslow, Caldwell, Id., assignor to Amanda Kimberly Winslow; Marjorie Ann Winslow; Francis Mae Winslow; Jennifer Jean Winslow and Marjorie Ellen Winslow, all of Caldwell, Id.

Filed Mar. 31, 1980, Ser. No. 136,092
Int. Cl.[3] F41C *27/00*
U.S. Cl. 42—90 9 Claims

1. A device for removing a percussion cap having a skirt from the primer nipple of a firearm, said nipple being provided with lugs spaced from said skirt, comprising:

a bifurcated plate including parallel upper and lower surfaces and a pair of substantially coplanar arms having opposing inner edges defining an elongated slot open at one end of said plate and closed at the other end, the distance between said inner edges at the upper surface of said plate being constant over the length of said slot and less than the distance between said inner edges at the lower surface of said plate, less than the outer diameter of said percussion cap at the skirt of said cap and greater than the diameter of said nipple at the point where the nipple meets the skirt of said cap, said inner edges forming predetermined angles with the upper surface of said plate; and

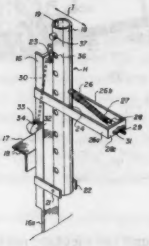
a handle joined to the other end of said bifurcated plate, the angle between said handle and the upper surface of said plate being such that sufficient leverage may be generated to remove said cap, said percussion cap being removed from said primer nipple by resting the lower surface of said plate on a lug of said nipple with said nipple inside said elongated slot and the upper surface of said plate pressing against the skirt of said percussion cap, and rotating said handle about the contact area between the lower surface of said plate and said lug.

4,334,377

FISHING POLE HOLDER

Edward L. Hartwig, 5636 North Ave., Carmichael, Calif. 95608

Filed Mar. 14, 1980, Ser. No. 130,350
Int. Cl.³ A01K 85/01
U.S. Cl. 43—17 8 Claims



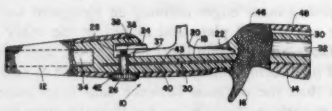
1. A fishing pole holder comprising, in combination, an elongated support member adapted to be disposed in an upstanding position on a supporting surface, a tubular member having a central bore for accommodating the handle of a fishing pole, means for pivotally mounting said tubular member at one end on said support member for movement in an angular path between a rest position and an operative position by the pulling action of a fish caught on said fishing pole, a bracket horizontally mounted on said support member, stop means on said bracket for limiting the pivotal movement of said tubular member to said rest position, means on said bracket horizontally disposed for yieldingly urging said holder into said rest position and normally inoperative alarm means on said support member for engagement by said tubular member in said operative position for operatively conditioning said alarm means to indicate the presence of a fish on said fishing pole, wherein said bracket is of U-shaped configuration having a pair of leg portions and a bight portion and including means for attaching the outer ends of said leg portions to said support member with said tubular member therebetween for pivotal movement of said tubular member in said angular path.

4,334,378

LIGHT WEIGHT CASTING ROD HANDLE

Charles C. Worth, 136 Cypress Ave., Kentfield, Calif. 94904

Filed Jun. 10, 1980, Ser. No. 158,232
Int. Cl.³ A01K 87/06
U.S. Cl. 43—22 5 Claims



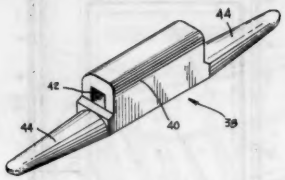
1. A lightweight casting rod handle comprising:
an elongated, generally cylindrical core of a rigid plastic;
a recess intermediate the ends of said core adapted to receive the foot of a reel;
a hole from the bottom of said core open into said recess at the forward portion thereof;
a hand-operated threaded member extending through said hole; and
a reel-foot clamp threadedly engaged with said member;
the improvement comprising:
a tubular extension of said core extending rearward from the forward end of said recess to overlie said hole and provide an integral annular hood surrounding same.

4,334,379

FISH LINE GUIDE ASSEMBLY

Pierre Nelli, 146 Main St., Westport, Conn. 06880

Continuation-in-part of Ser. No. 120,212, Feb. 11, 1980, Pat. No. 4,277,906. This application Jun. 22, 1981, Ser. No. 275,644
Int. Cl.³ A01K 87/04
U.S. Cl. 43—24 8 Claims



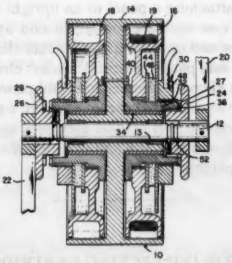
1. A fish-line guide assembly having a removable wire loop member, said assembly being adapted for attachment to a fish rod to confine and guide the fish line along the same and comprising in combination:
(a) a plastic mounting clip having an elongate body portion and a pair of attachment tabs integral with the body portion and extending in opposite directions from the ends thereof, said tabs being adapted for placement against the fish rod with the tabs parallel to and overlying the rod for securement thereto by wrappings,
(b) said clip body portion being tubular, having a bore with a cross-sectional configuration adapted to closely confine a single thickness, rod-like member,
(c) a one-piece wire loop member having solely one integral supporting single-thickness rod-like base constituted of a completely straight, solid, single-thickness wire tine which is of non-circular cross section and is adapted to be frictionally received in the body portion of the mounting clip,
(d) said bore of the body portion defining a friction passage for receiving the single-thickness wire tine of the loop member and at said passage conforming to the non-circular cross section of said tine.

4,334,380

TROLLING RIG

Dennis Daniels, Quilecene, Wash.

Filed Feb. 21, 1979, Ser. No. 13,318
Int. Cl.³ A01K 89/015
U.S. Cl. 43—27.4 7 Claims



1. A trolling rig comprising:
a base adapted to be fastened to a boat;
a pair of closely spaced weight line drums rotatably mounted on said base and axially fixed on said base;
a disengageable drive assembly for rotating each drum;
a common crankshaft selectively drivingly engageable with each said drive assembly;

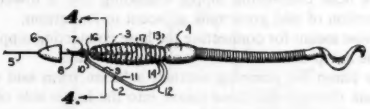
means for rotating said crankshaft;
overrunning clutch means for precluding rotation of said drive assembly in one direction only;
drag means for selectively allowing rotation of a drum relative to the drive assembly in the direction precluded by the overrunning clutch when disengaged and precluding rotation of the drum relative to the drive assembly when engaged; and
means for drivingly coupling said crankshaft to each drive assembly for rotating each of said drums independently of one another, said drag means being located on axially outer sides of said drums externally of both drums for access by the user.

4,334,381

FISHHOOK AND WORM LURE COMBINATION

Robert G. Carver, Minden, La., and Clarence Steward, Keller, Tex., assignors to Carver Manufacturing Incorporated, Linden, La.

Continuation of Ser. No. 17,547, Mar. 5, 1979, abandoned. This application Oct. 15, 1980, Ser. No. 197,260
Int. Cl.³ A01K *83/06, 85/00*
U.S. Cl. 43—42.29 **4 Claims**



1. In combination with a plastic worm lure, an improved fishhook and connector device for rigging and retaining said plastic worm lure thereon comprising:
(a) a fishhook comprising a length of wire formed to present successively an eye, an elongated shank, a re-entrant curved bight and a barbed point, said shank further having a bend adjacent the eye thereof whereby the eye is offset from the shank in the same direction as the barbed point, said eye, shank, curved bight and barbed point being substantially in a single plane; said eye being adjacent a head of the worm and the elongated shank at an acute angle relative to the longitudinal axis of the worm with the barbed point embedded in said worm to assume a bite responsive position under an exterior surface of the worm, said fishhook eye being the line attaching eye;
(b) an elongate straight and substantially rigid anchor member having a shank with eye at one end and a pointed end at the other end, said anchor member pointed end generally pointed toward said fishhook barbed point; said anchor rod being of a length approximately one-half to three-fourths of a distance between said fishhook eye and barbed point, said anchor member shank extending into the worm lure from the head end with the anchor rod eye positioned exteriorly of and adjacent said head end; said anchor member shank having a plurality of laterally outwardly extending projections spaced apart along the length thereof to resist retraction from the worm lure; and
(c) said fishhook being swingably connected to the anchor member by swingably joining the fishhook eye to the anchor member eye.

4,334,382

INFANT DEVELOPMENT RING TOY

Richard A. Chase; Danny E. Simpson, both of Baltimore, Md., and David M. Williams, Montreal, Canada, assignors to Johnson & Johnson Baby Products Company, New Brunswick, N.J.

Continuation-in-part of Ser. No. 884,780, Mar. 8, 1978. This application Apr. 30, 1980, Ser. No. 145,168
The portion of the term of this patent subsequent to Feb. 10, 1998, has been disclaimed.
Int. Cl.³ A63H *33/00*; A61J *17/00*
U.S. Cl. 46—1 R **3 Claims**

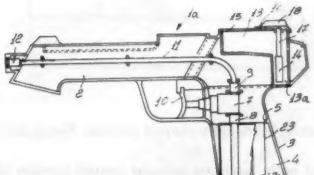
1. An infant development toy comprising:
a plurality of rings of varying diameter; including a largest ring, a next largest ring, a central object, and flexible connecting means connecting said central object and said plurality of rings in such a manner that, when the toy is freely suspended from the point of connection of the largest ring and the connecting means, the connecting means is disposed vertically as the toy assumes a configuration wherein the rings are concentric about the central object, said flexible connecting means being the sole means connecting said rings, and said connecting means being sufficiently flexible that the next largest ring is readily movable out of the plane defined by the largest ring;
said flexible connecting means extending outwardly of the rings to form a primary handle;
said primary handle having attached thereto an end object.

4,334,383

WATER SPRINKLING TOY PISTOL WITH BUBBLE-BLOWING RING

Athos Melotti, Via dello Spalto 3 -, Bologna, Italy

Filed Sep. 29, 1980, Ser. No. 191,967
Claims priority, application Italy, Oct. 15, 1979, 26498 A/79
Int. Cl.³ A63H *33/28*
U.S. Cl. 46—7 **5 Claims**



1. A water sprinkling toy pistol of the type which comprises a water magazine adapted for insertion into the pistol grip and in operative communication with means for ejecting a sprinkle of water from the pistol barrel, characterized in that it further comprises, located above said magazine, a reservoir intended for containing a liquid effective to produce bubbles of the type of soap bubbles, a bubble blowing ring immersed in said reservoir, said ring being movably mounted on said pistol and adapted to be raised by supporting means therefor guided

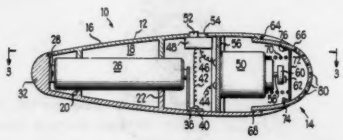
within the pistol grip to a position to deliver bubbles in the direction of the pistol barrel.

4,334,384

TOY RAZOR

Gregory B. Rogers, Hollywood, Calif.; John R. Wildman, North Riverside, and Jeffrey D. Breslow, Highland Park, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 6, 1981, Ser. No. 232,408
Int. Cl.³ A63H *33/30*
U.S. Cl. 46—39 **12 Claims**



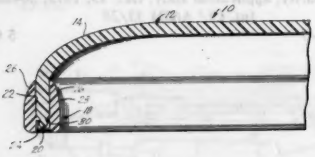
1. A toy razor comprising:
a housing;
a razor head slideably mounted on said housing to allow movement of said head relative to said housing from a first position to a second position upon engagement of said head with an object;
first means for producing a first sound while said head is in said first position, and second means for producing a second sound upon movement of said head relative to said housing.

4,334,385

FLYING DISC

Arthur K. Melin; Richard L. Gillespie, both of San Gabriel, and Douglas A. Geller, Monrovia, all of Calif., assignors to Wham-O Mfg. Co., San Gabriel, Calif.

Filed Nov. 5, 1979, Ser. No. 91,580
Int. Cl.³ A63H *27/00*
U.S. Cl. 46—74 D **12 Claims**



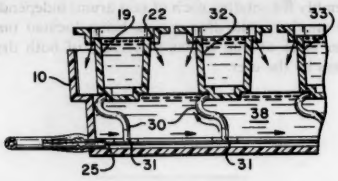
1. An aerodynamically-shaped circular flying disc comprising
a domed body having a circular central portion of a generally uniform cross-section and a downwardly depending skirt portion; and
a separately integral circular rim portion having an upwardly opening passage extending annularly around the rim portion and a generally greater cross-sectional area than said central portion, said rim portion being secured to the skirt portion at the annular passage such that the rim portion brackets the skirt portion, the cross-sectional profile of the central portion and rim portion conforming to that of an airfoil.

4,334,386

SOILESS GARDENING SYSTEM

Douglas A. Burcombe, P.O. Box 1432, Orange, Calif. 92668, and Jean M. Wills, Orange, CA, assignors to Douglas Arthur Burcombe, Shingletown, Calif.

Filed Jun. 16, 1980, Ser. No. 160,075
Int. Cl.³ A01G *23/02*
U.S. Cl. 47—62 **9 Claims**



1. A modular soilless gardening system, including, in combination:
(a) a portable sump tank of molded plastic material having an open top and a stable bottom for level seating on a flat surface;
(b) a hose connecting nipple extending into a lower side portion of said sump tank adjacent to said bottom;
(c) a portable grow tank of molded plastic material having an open top and a formed bottom, said sump tank including internal step means for supporting said grow tank above the bottom of the sump tank for seating the grow tank at a level higher than said sump tank, said grow tank including an overflow opening in its upper half;
(d) a hose connecting nipple extending into a lower side portion of said grow tank adjacent to its bottom;
(e) hose means for connecting the hose connecting nipples of the sump tank and grow tank together; and
(f) a pump for pumping nutrient solution from said sump tank through said hose means into the lower side of said grow tank through said hose connecting nipple, said solution overflowing through said overflow opening in said grow tank to pass back into said sump tank whereby said grow tank can be periodically irrigated with treated water in said sump tank to promote growth of plant life in said grow tank.

4,334,387

RETAINER FOR GROWTH SUPPORTING MEDIUM

Ladislay S. Karpisek, 86 Woodfield Blvd., Caringbah, N.S.W., Australia

Filed Jul. 11, 1980, Ser. No. 167,724
Int. Cl.³ A01G *9/02*
U.S. Cl. 47—83 **3 Claims**

1. A retainer growth supporting medium such as soil, said retainer being for tiered assembly with like retainers, each said retainer being elongated and having two sides, two ends joining said sides, an open top and open bottom, the width of the

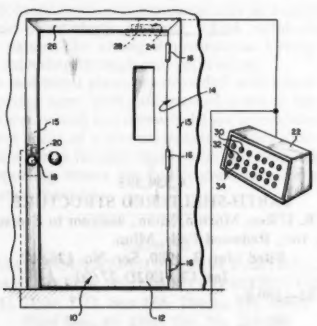
open top between the said sides being greater than the overall width of the retainer bottom, the length of the open top between the said ends approximating but being greater than the overall length of the retainer bottom, one of said sides inclined inwardly downwardly relative to the other side, said ends parallel to each other, said ends and said inclined side adjacent the retainer bottom being instepped to provide first shoulders spaced at a uniform distance from said retainer bottom and the other side being instepped adjacent the retainer bottom to form a second shoulder spaced further from the retainer bottom than said first shoulders, the top edge of said other side standing above the top edges of said ends by an amount less than the difference between the distance of said first shoulders from said retainer bottom and the distance of the second shoulder from the retainer bottom, locating means projecting into the said open top of said retainer to laterally divide said open top into receiving and growing zones and to also laterally stabilize the lower end of a superimposed retainer when it is inserted into the receiving zone of an underlying retainer in a tiering operation.

4,334,388

DOOR POSITION MONITORING ASSEMBLY

Raymond V. Kambic, Joliet, Ill., assignor to Brink's Locking Systems, Inc., Plainfield, Ill.

Filed Aug. 18, 1980, Ser. No. 179,265
Int. Cl.³ G08B *13/08*
U.S. Cl. 49—14 **27 Claims**



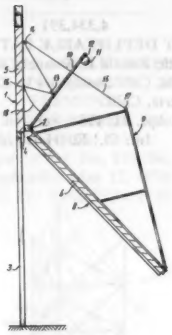
1. A door position monitoring assembly for a security door installation, comprising, track means for mounting with respect to a horizontal edge of a door and movable therewith; a circuit component mountable with respect to a stationary surface of the door installation, such as the door frame or the threshold, which surface extends generally parallel to said horizontal edge of door, said circuit component being capable of being operated to attain a first condition, and a second condition which can be detected by suitable circuit means; a control arm having one end thereof slidably connected to said track means, and being pivotally mounted proximate the other end thereof, such that movement of said door will produce pivotal movement of said control arm; and actuator means interconnecting said pivotally mounted end of the control arm and said circuit component such that when the door is open said circuit component will be in a first condition, with rotation of said control arm upon movement of the door to the substantially closed position, producing a second condition for said circuit component, with initial movement of the door away from the fully closed position producing pivotal movement of the control arm in an opposite direction permitting said circuit component to return to said first condition.

4,334,389

PANEL WITH COUNTERWEIGHT

Frederiks T. L. Visser, Amersfoort, Netherlands, assignor to Poly-Pro, B.V., Maartensdijk, Netherlands

Filed Mar. 11, 1980, Ser. No. 129,256
Claims priority, application Netherlands, Mar. 13, 1979, 7901983
Int. Cl.³ E05F *1/00*
U.S. Cl. 49—387 **6 Claims**



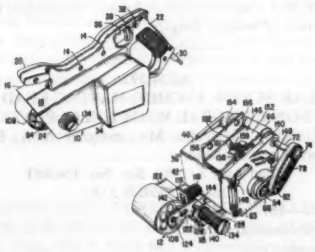
1. In combination: a panel for opening and closing an opening surrounded by a structure defining a space, a pivot pivoting said panel to said structure at the side thereof facing away from the space, a member rigidly connected to said panel and extending a certain distance away from the surface of the panel, a flexible element one end of which is connected to said member and the other end of which is connected to said structure at a fixed point, a counterweight, bar means pivotally connecting said counterweight to said structure at or adjacent to said pivot, and two guide means, said flexible element being secured to said guide means intermediate its ends, one guide means being mounted on said bar and the other guide means being disposed on said structure.

4,334,390

BELT SANDER

Russell Sumerau, Easley, S.C., assignor to The Singer Company, Stamford, Conn.

Filed Sep. 24, 1980, Ser. No. 190,544
Int. Cl.³ B24B *23/06*
U.S. Cl. 51—170 EB **8 Claims**



1. A portable electric belt sander comprising a combined housing and handle assembly of clam shell construction of mating housing and handle cover halves, defining a hand grip area for the operator's hand and carrying a trigger switch adjacent said hand grip portion, and a self-contained belt support and drive module assembly connected therewith, said belt support and drive module assembly being of generally trape-

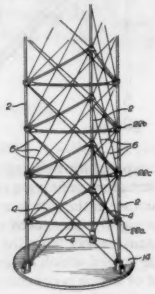
zoidal configuration and including a belt drive roller at an upper rear position, a belt idler roller at a lower rear position, and a spring biased nose idler roller with a drive motor therebetween together with a combined wear strip and support bracket extending generally upwardly therefrom adapted to be engaged between the housing and handle cover halves and secured thereto by fastener means extending through said housing and handle cover halves and said support bracket and wear strip.

4,334,391

REDUNDANT DEPLOYABLE LATTICE COLUMN

John M. Hedgepeth; Ronald L. Samuels, and John Stammreich, all of Carpinteria, Calif., assignors to Astro Research Corporation, Carpinteria, Calif.

Filed Apr. 21, 1980, Ser. No. 142,221
Int. Cl.³ E04H *12/18*
U.S. Cl. 52—108 **10 Claims**



1. A deployable lattice column including:
a plurality of continuous longeron elements,
a plurality of flexible lateral elements connected between adjacent longeron elements, the lateral elements including flexible diagonal members, pairs of first diagonal members being cross-connected between two pairs of generally laterally opposed points along said longeron elements and defining adjacent bays of the column,
second flexible diagonal members being connected to the longerons at least one of said connections being intermediate said laterally opposed points, and
the longeron and lateral elements being constructed and connected to constitute a structure movable between a deployed orientation defining a column of substantial length and a second, coil-collapsed orientation defining a structure of smaller length.

4,334,392

MODULAR SCREW ANCHOR HAVING LEAD POINT NON-INTEGRAL WITH HELIX PLATE

Edward Dziedzic, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.

Filed Apr. 3, 1980, Ser. No. 136,881
Int. Cl.³ E02D *5/80*
U.S. Cl. 52—157 **19 Claims**

1. In combination:
an elongated rod;
an anchor member including a hub presenting a bore therein, and an outwardly extending, load-bearing element affixed to the exterior of said hub,
said rod extending into said hub bore;
means for operably coupling said anchor member to said rod;
a wrench including an elongated, tubular shank telescoped over said rod and extending into said hub bore such that the portion of said shank extended into the hub bore is disposed between said rod and hub;
structure for drivingly connecting said shank to both of said rod and said anchor member such that axial rotation of said shank effects corresponding rotation of said rod and

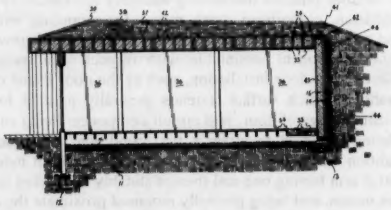
anchor member and distribution of driving forces from said shank to said rod and anchor member, whereby installation of the rod and anchor member into the earth is facilitated without breakage thereof; and
means defining an earth-penetrating lead adjacent one end of said rod.

4,334,393

EARTH-SHELTERED STRUCTURE

Kenneth R. U'Ren, Morton, Minn., assignor to Everstrong Marketing, Inc., Redwood Falls, Minn.

Filed Mar. 3, 1980, Ser. No. 126,657
Int. Cl.³ E02D *27/00*
U.S. Cl. 52—169.6 **11 Claims**

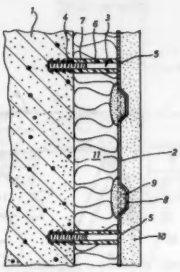


1. In an earth-sheltered structure:
(a) a wall including a plurality of vertically exposed studs;
(b) one or more top plate members disposed and affixed atop the wall and supported by the studs; and
(c) a plurality of parallel ceiling joist members having notches formed therein for at least partial disposition about the top plate members and each being directly supported above a stud, and a rim joist member disposed atop said top plate member and being connected to said ceiling joist members.

4,334,394
INSULATED OUTER COATING OF WALLS OF BUILDING STRUCTURES

Karl Mäder, Rapperswil, Switzerland, assignor to IDC Chemie AG, Rapperswil, Switzerland

Filed May 30, 1980, Ser. No. 155,011
Claims priority, application Switzerland, Jun. 5, 1979, 5228/79
Int. Cl.³ E04B 1/88
U.S. Cl. 52—309.12 3 Claims



1. An improved outer coating for vertically extending walls of building structures, including

a cured foamed insulation material consisting of urea-formaldehyde applied in a flowable state;

an outer plaster material;

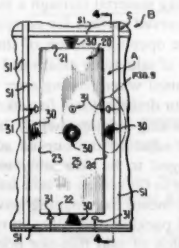
metal plates acting as a molding form means for said foamed urea-formaldehyde and simultaneously as a carrier means for said outer plaster material, which metal plates comprise pattern-like arranged protrusions having perforations extending through said protrusions;

wherein said metal plates are provided with screw bolts for connecting same with said vertical walls of the building structures, which said screw bolts are surrounded each by a sleeve made of a plastics material, which sleeves act as distance pieces for said metal plates and simultaneously as a supporting means for said foamed urea-formaldehyde insulation material.

4,334,395
THERMAL INSULATING SYSTEM PARTICULARLY ADAPTED FOR BUILDING CONSTRUCTION

Harrison G. Dyar, P.O. Box 185, Tampa, Fla. 33601

Filed Dec. 10, 1980, Ser. No. 215,083
Int. Cl.³ E04B 1/78
U.S. Cl. 52—407 25 Claims

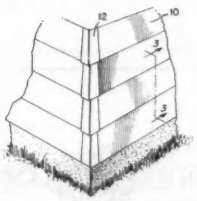


1. A system for insulating building walls, ceilings, floors or like structure comprising wall means for forming a hollow insulating panel defining an interior chamber under negative pressure, means contacting a limited exterior surface area of said panel for supporting said panel in generally spaced relationship from an associated building wall, ceiling, floor or like structure, means normally spaced from the exterior surface of said panel for contacting a limited exterior surface area of said panel only upon said first-mentioned contacting means becoming inoperative which would in the absence of said second-mentioned contacting means result in direct contact between said panel and the associated building wall, ceiling, floor or like structure, and said second-mentioned contacting means being an elongated pin-like element of relatively small cross-sectional configuration whereby thermal conduction transfer therethrough is substantially negligible.

4,334,396
INTERCONNECTING LOCK CONSTRUCTION FOR SIDING, SOFFITS AND RELATED CONSTRUCTION ELEMENTS

John G. Hagopian, New Philadelphia, Ohio, assignor to The Anaconda Company, New York, N.Y.

Continuation-in-part of Ser. No. 910,756, May 30, 1978, abandoned. This application May 15, 1979, Ser. No. 38,561
Int. Cl.³ E04C 2/38, 2/40
U.S. Cl. 52—522 11 Claims



1. A panel construction having a surface covering face, an overlapping first edge therealong folded over to provide a double thickness and having a terminally disposed gripping portion, said double thickness of said first edge providing a nail hem having a plurality of slots evenly spaced along and through both thicknesses of said nail hem for receiving installation nails, and a second edge oppositely disposed to said first edge, said second edge also having a terminally disposed gripping portion for mating engagement with said first-mentioned gripping portion in the securement of a panel of an upper course with a panel of a lower course of panels when said second-mentioned gripping portion is entered through an opening between said first-mentioned gripping portion and said surface covering face into a pocket, said first-mentioned gripping portion formed to a loop extending throughout a substantial major extent of a closed loop and terminating in a bite portion toward said surface covering face of said lower panel for interacting with the second-mentioned gripping portion of said upper panel when received in said pocket, said first and second-mentioned gripping portions having dissimilar contours thereby to reduce surface friction between gripping portions and permit sliding adjustment of a panel of an upper course on a panel of a lower course.

4,334,397
MASONRY STRUCTURE AND APPARATUS AND PROCESS FOR SPACING BLOCK IN THE STRUCTURE

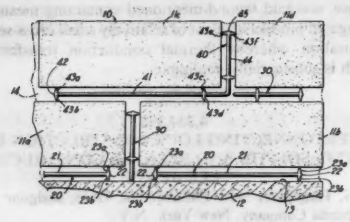
George R. Hitz, 509 N. Cobb St., Milledgeville, Ga. 31061

Filed Apr. 25, 1980, Ser. No. 143,537
Int. Cl.³ E04C 5/16
U.S. Cl. 52—687 24 Claims

1. An apparatus, for spacing apart adjacent masonry blocks, comprising:

(a) a frame in a first plane, said frame being formed of spaced, longitudinal struts and a transverse strut joining said longitudinal struts and spacing them apart; and

(b) a plurality of spaced spacer fingers extending in opposite directions from opposite sides of the struts, said spacer fingers on one side of said frame terminating with the outer ends in a substantially common second plane and



said spacer fingers on the other side of said frame terminating with their outer ends in a common third plane, the thickness of said frame being substantially less than the distance between the spaced apart adjacent masonry blocks.

4,334,398

INSULATING ELEMENT FOR A MULTI-PANED WINDOW

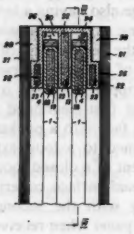
Paul Grether, Seuzach, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Nov. 8, 1979, Ser. No. 92,368

Claims priority, application Switzerland, Nov. 17, 1978, 11822/78

Int. Cl.³ E04C *1/42, 2/34*

U.S. Cl. 52—789 **17 Claims**



1. An insulation element for use between the panels of a multi-pane window comprising

a pair of transparent films disposed in overlying sandwiched relation to each other and joined together along a major part of each side thereof; and

clamping means for biaxially stretching said films, said means including a plurality of elongated elements with each elongated element being disposed along a respective side of said joined films whereby in unclamped state said elongated elements and respective sides of said joined films are disposed with at least one of said elements and sides bent along an arcuate line relative to the other of said elements and sides to obtain a uniform tensioning of said films whereby each said elongated element is free to move relative to said films and to expand and contract at a different rate from said films.

4,334,399

APPARATUS FOR TRANSFERRING STRIP-LIKE PLASTICS BAG MATERIAL IN PACKAGING MACHINE

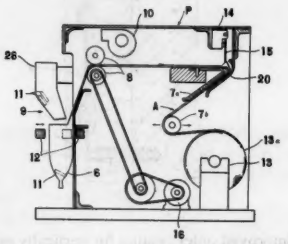
Masami Onishi, Tokyo, Japan, assignor to Taiyo Shokai Co., Ltd., Japan

Filed May 16, 1980, Ser. No. 150,369

Claims priority, application Japan, May 17, 1979, 54-59668; Sep. 14, 1979, 54-118270

Int. Cl.³ B65B *43/12*

U.S. Cl. 53—69 **4 Claims**

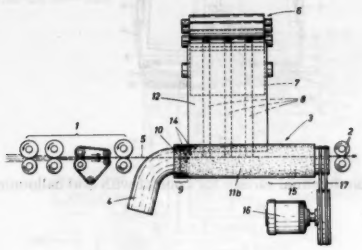


1. An apparatus for conveying an elongated strip-like bag material of a collapsed plastic film tube in a packing machine, said bag material being of the type having a series of interconnected bags each having on one side thereof a transversely extending heat-sealed bottom portion and a transversely extending opposite opening portion located at a portion adjacent to and parallel with said heat-sealed portion, each bag of said material having a flap-like margin formed transversely across the bag material between said opening portion and said heat-sealed portion and also an easily severable fragile portion formed transversely across the bag material on the other side thereof at a portion opposite to said opening portion, the packing machine being of the type having goods-charging means for charging goods into the bags, and the material being mounted in a roll, said apparatus comprising a pair of intermittently operated pinching rollers for intermittently conveying said bag material extending from the roll of said bag material for a distance, at a time, corresponding to the length of a single bag towards the goods-charging device of said packing machine, guide means mounted upstream of said pinching rollers for guiding said bag material through a travel path, said guide means having a curved surface for carrying said bag material so that respective opening portion of the bag material is directed outwardly of said guide means and said flap-like margin is caused to be raised when passing over said curved surface, detecting means for detecting said flap-like margin, said detecting means comprising a microswitch having an elongated contact mounted adjacent the curved surface of said guide means and arranged to be releasably engageable with said margin responsive to the raising of said margin during travel of said bag material, means for stopping travel of said bag material for sequential packing operations in response to detection by said microswitch of said flap-like portion, and means for smoothing wrinkles formed in said bag-material, said smoothing means comprising a plate mounted adjacent said guide means and upstream of said microswitch to form a passage between said guide means and said plate for allowing said bag material to pass therethrough, said passage having a clearance capable of smoothing said wrinkles as said bag material travels through said passage.

4,334,400
APPARATUS FOR MAKING A YARN

Ernst Fehrer, Auf der Gugl 28, Linz, Austria

Filed Jan. 22, 1981, Ser. No. 227,366
Claims priority, application Austria, Jan. 28, 1980, 427/80; Feb. 19, 1980, 902/80; Mar. 3, 1980, 1147/80
Int. Cl.³ D01H 1/135; D02G 3/36
U.S. Cl. 57—5 8 Claims



1. In apparatus for making a yarn having at least a predetermined diameter, comprising

two juxtaposed, closely spaced apart suction drums having respective peripheral suction zones which face each other and define a generally triangular space between said drums,

a drawing frame for delivering a drawn roving to said triangular space at one end thereof,

means for twisting said roving and for fixing the resulting twist, including means for rotating said drums in the same sense and covering fiber-delivering means comprising a delivery duct which protrudes into said triangular space and has an exit adjacent to said suction zones, said covering fiber-delivering means being operable to deliver singled covering fibers through said exit to said roving, whereby said roving is wrapped with said covering fibers to form a yarn in said triangular space, and

withdrawing means for withdrawing said yarn from said triangular space at the other end thereof,

the improvement residing in that

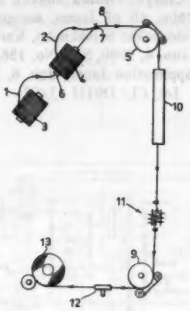
each of said suction drums has a rough peripheral surface which defines said triangular space and which has a microstructure that prevents a positive coupling between said peripheral surface and individual covering fibers and which has a peak-to-valley height that is up to one-half of said predetermined diameter.

4,334,401
PROCESS FOR MAKING TEXTURED YARN

Hardev S. Bahia, Coventry, England, assignor to Courtaulds Limited, London, England

Filed May 1, 1980, Ser. No. 145,703
Claims priority, application United Kingdom, May 3, 1979, 15464
Int. Cl.³ D02G 1/02, 3/00, 3/34
U.S. Cl. 57—6 7 Claims

1. A process for making a textured yarn comprising combining a carrier yarn component with an extensible yarn component comprising continuous filaments of a synthetic polymeric material and having an extensibility of greater than 60 percent, and false-twisting the combined yarn under tension using a false-twist texturising unit employing rotary friction elements so as to break at least some of the filaments of the extensible yarn component intermittently along the length of the yarn

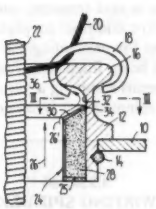


whilst maintaining the carrier yarn component substantially intact.

4,334,402
APPARATUS FOR LUBRICATING A RING TRAVELLER OF A RING SPINNING OR RING TWISTING FRAME

Emil Stutz, Winterthur, Switzerland, assignor to Brücker AG, Pfäffikon, Switzerland

PCT No. PCT/CH79/00106, § 371 Date Apr. 7, 1980, § 102(e) Date Mar. 25, 1980, PCT Pub. No. WO80/00355, PCT Pub. Date Mar. 6, 1980
PCT Filed Jul. 26, 1979, Ser. No. 199,511
Claims priority, application Switzerland, Aug. 7, 1978, 8 366/78
Int. Cl.³ D01H 7/62
U.S. Cl. 57—120 8 Claims



1. An apparatus for lubricating a ring traveller on a spinning or twisting ring of a ring spinning or ring twisting frame, comprising:

a store containing a lubricant and at least one lubricant outlet opening connected to said store;

said at least one lubricant outlet opening being spaced apart from the contact surface between the ring traveller and the spinning or twisting ring in the direction of flow of the air current which occurs during spinning or twisting;

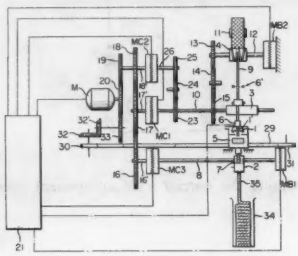
said spinning or twisting ring upon which said ring traveller is arranged being shaped to provide an underpressure zone facing said lubricant store a distance away therefrom; and

said at least one lubricant outlet being arranged in said underpressure zone.

4,334,403
SPINNING UNITS IN AN OPEN END SPINNING MACHINE

Toshio Yoshizawa, Chiryu; Osamu Suzuki, and Yoshiaki Yoshida, both of Ohbu, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Jun. 4, 1980, Ser. No. 156,856
Claims priority, application Japan, Jun. 6, 1979, 54/69950
Int. Cl.³ D01H *15/02*
U.S. Cl. 57—263 **8 Claims**



1. In an open end spinning machine including a plurality of spinning units, each said spinning unit including a spinning rotor for forming fibers into a yarn, and means for supplying fibers into said spinning rotor, the improvement wherein:

each said spinning unit includes first yarn break sensing means for detecting breakage of said yarn when said spinning machine is in a normal spinning operation and for stopping the respective said fiber supplying means in response thereto, and thus for preventing the respective said spinning rotor from being filled with fibers, said first yarn break sensing means assuming an operative yarn sensing position in contact with said yarn when said spinning unit is in a normal spinning operation, and said first yarn break sensing means assuming an inoperative position out of contact with said yarn when said spinning unit is in a transient condition either from or to the normal spinning operation; and

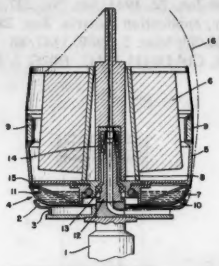
each said spinning unit includes a second yarn break sensing means for detecting breakage of said yarn when said spinning machine is in said transient condition and for stopping the respective said fiber supplying means in response thereto, and thus for preventing the respective said spinning rotor from being filled with fibers, said second yarn break sensing means assuming a yarn sensing condition at least when said spinning unit is in said transient condition.

4,334,404
TWO-FOR-ONE TWISTING SPINDLE WITH A SUPPLY RECEPTACLE FOR A LUBRICANT

Gustav Franzen, Willich, Fed. Rep. of Germany, assignor to Palitex Project-Company GmbH, Krefeld, Fed. Rep. of Germany

Filed Jul. 29, 1980, Ser. No. 173,668
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1979, 2931391
Int. Cl.³ D01H *13/30, 7/86*
U.S. Cl. 57—296 **4 Claims**

1. A two-for-one twisting spindle for supporting a thread supply package and having an inside support for a thread balloon comprising; a protective pot enclosing said supply package and having a sidewall, a base and a hollow hub, a stationary supply receptacle having thread lubricant in said protective pot base said protective pot having an outer circumferential thread-engaging surface over which the ballooning thread drawn from said supply package passes during spindle operation whereby lubricant from said supply receptacle is fed

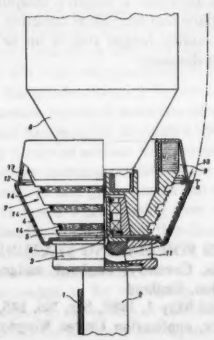


to said circumferential surface for contact with said ballooning thread.

4,334,405
STATOR SECTION FOR A SPINDLE, MORE ESPECIALLY A TWO-FOR-ONE SPINNING OR TWISTING SPINDLE

Godehard von Colson, Kempen, Fed. Rep. of Germany, assignor to Palitex Project-Company GmbH, Krefeld, Fed. Rep. of Germany

Filed Aug. 11, 1980, Ser. No. 176,703
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939645
Int. Cl.³ D01H *11/00, 7/86*
U.S. Cl. 57—300 **8 Claims**



1. A two-for-one spinning or twisting spindle comprising; spindle bearings for supporting said spindle for rotation, said spindle having a stator section and a spindle rotor at least partly enclosing said spindle section, said stator section having surfaces thereon located opposite said spindle rotor, and catching means for retaining and collecting fluff, threads and other foreign particles carried by ambient air thereby preventing said particles from reaching said spindle bearings.

4,334,406
FUEL SUPPLY SYSTEM

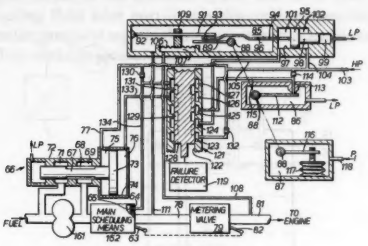
Geoffrey C. Todd, Evesham, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England

Continuation of Ser. No. 952,254, Oct. 17, 1978. This application Apr. 24, 1981, Ser. No. 257,249

Claims priority, application United Kingdom, Mar. 15, 1978, 10192/78

Int. Cl.³ F02C *9/08*

U.S. Cl. 60—223 **3 Claims**



1. In a liquid fuel supply system for an engine, pump means for supplying fuel under pressure, normally-operative main supply control means for controlling the supply of fuel under pressure to the engine in accordance with the setting of a primary control and in accordance with at least one secondary control signal derived from an operational condition of the engine, normally-inoperative auxiliary supply control means for controlling the supply of fuel under pressure to the engine in accordance at least with the setting of said primary control, said auxiliary supply control means being inoperative to control the supply of fuel when the main supply control means is operative to control the supply of fuel, being subject to the setting of said primary control both when inoperative and when operative, and having a metering valve through which fuel from the main supply control means passes when the auxiliary supply control means is inoperative, change-over valve means operable to render, substantially instantaneously, the main supply control means inoperative to control the supply of fuel and the auxiliary supply control means operative to control the supply of fuel, movable means subject to the pressure drop across the metering valve when the main supply control means is operative to control the supply of fuel and operable on the auxiliary supply control means whereby, in combination with the setting due to said primary control, the amount of fuel supplied to the engine by the auxiliary supply control means at the instant of operation of the change-over means will be the same as that amount which was being supplied by the main supply control means at that instant and fuel flow restricting means in said auxiliary supply control means operable to ensure that immediately after operation of the change-over means the amount of fuel supplied to the engine by the auxiliary supply control means can change from that amount only at a slow rate in the absence of any change in the setting of the primary control.

4,334,407
COMPRESSED GAS OPERATED TURBINE

Ulpiano Barnes, Laguna Garden 3, Apt. 12L, Loiza Sta., P.R. 00913

Filed Jan. 22, 1980, Ser. No. 114,365

Int. Cl.³ F15B *11/06*

U.S. Cl. 60—407 **1 Claim**

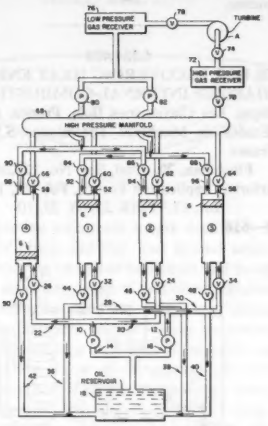
1. A turbine having an inlet and an outlet, and means for operating the turbine comprising:

at least three cylinders each having a free piston therein dividing the cylinder into an oil chamber and a gas chamber,

means for supplying oil under pressure to the oil chambers of the cylinders in a pre-determined sequence to operate the pistons and compress the gas in the gas chambers in that sequence,

a plurality of conduits, each conduit connecting one of the gas chambers to the inlet of the turbine,

means for causing high pressure compressed gas to flow



through the conduits to the inlet of the turbine in the same pre-determined sequence, and means for causing low pressure gas to flow from the outlet of the turbine solely to the gas chamber of that one of the cylinders which is next to be supplied with oil under pressure, said gas chambers, conduits, and turbine defining a closed gas filled system.

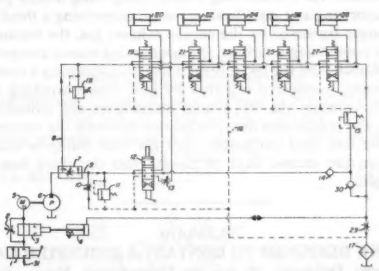
4,334,408
PNEUMATIC AND HYDRAULIC POWER CONTROL OF DRILL

Roland R. LaPointe, Claremont, N.H., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Sep. 19, 1979, Ser. No. 77,244

Int. Cl.³ F16D *31/02*

U.S. Cl. 60—423 **25 Claims**



1. An apparatus for the operation of a mechanism having varying power requirements comprising:

means for providing a source of pressurized gas having control means for selectively varying the flow of the gas over a predetermined range in response to a pressurized hydraulic fluid;

pump means operably connected to the output of said control means for providing a source of pressurized hydraulic fluid generally responsive to the flow of the varying gas flow from said control means;

at least one hydraulically actuated mechanism means for translating hydraulic energy into mechanical energy;

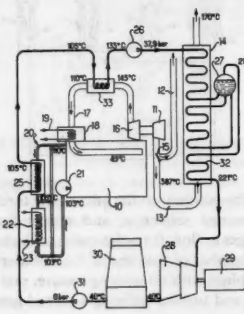
at least one valve means for alternatively selectively communicating at least a portion of the pressurized hydraulic source to said mechanism means or to said control means as a hydraulic signal such that said control means reduces the flow of the gas when said valve means is not placing the hydraulic source in communication with said mechanism means.

4,334,409

DEVICE FOR RECOVERING HEAT ENERGY IN A SUPERCHARGED INTERNAL-COMBUSTION ENGINE

Claude Daugas, Les Clayes sous Bois, France, assignor to Societe d'Etudes de Machines Thermiques S.E.M.T., Saint-Denis, France

Filed Feb. 20, 1980, Ser. No. 123,003
Claims priority, application France, Feb. 22, 1979, 79 04555
Int. Cl.³ F01K *23/08, 23/10*
U.S. Cl. 60—618 **2 Claims**



1. Thermodynamic apparatus operating on a Rankine cycle for recovering heat energy from a supercharged liquid cooled internal combustion engine, the apparatus including a closed circuit for a working fluid and means for preheating, pressurizing, vaporizing, superheating, expanding, condensing and recirculating the working fluid in the closed circuit, the preheating means comprising a first heat exchanger traversed by the heated cooling liquid from the engine and a second heat exchanger traversed by the air issuing from a supercharging compressor, the pressurizing means comprising a feed pump, the vaporizing and superheating means comprising a third heat exchanger traversed by the engine exhaust gas, the expanding means comprising a turbine, the condensing means comprising a condensor, and the recirculating means comprising a condensate pump, connected together by said closed working fluid circuit, wherein the three heat exchangers are mounted in series, the condensate pump is located between the condenser and the first heat exchanger, and the feed pump is located between the second heat exchanger and the third heat exchanger.

4,334,410

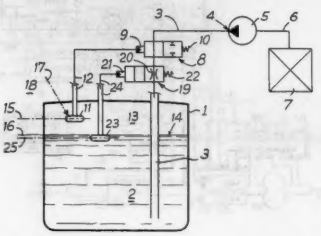
TANK DESIGNED TO CONTAIN A LIQUEFIED GAS

Huguette Drumare, 28 rue du Commandant Vesco, Sainte Adresse, France (76310)

Filed Dec. 3, 1980, Ser. No. 212,426
Int. Cl.³ F17C *13/02*
U.S. Cl. 62—49 **8 Claims**

1. A tank for receiving liquefied gas, a feed pipe connected to said tank for supplying said liquefied gas to the interior of said tank, a first control valve and a second control valve connected to said feed pipe for controlling the flow of said gas through said feed pipe into said tank and control means for controlling the operation of said valves and thereby controlling the level of the liquefied gas in said tank, said control means comprising:

a first temperature responsive device mounted within said tank at the filling level to which said tank is to be filled with the liquefied gas, said device having thermal leak means extending to the exterior of said tank and said device being connected to said first valve for closing said first valve, and thereby to stop the flow of gas into said tank, when the liquefied gas is at said filling level and cools said device and for causing said first valve to open, and thereby to permit the flow of gas into said tank, when the liquefied gas is below said filling level and permits the temperature of said device to rise; and



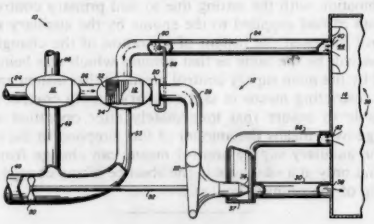
a second temperature responsive device mounted within said tank at a lower level below said filling level, said second device having thermal leak means extending to the exterior of said tank and said second device being connected to said second valve for partially closing said second valve, and thereby to reduce the flow of the gas into said tank, when the liquefied gas is at said lower level and cools said second device and for causing said second valve to change to a more open condition, and thereby to increase the flow of the gas into said tank, when the liquefied gas is below said lower level and permits the temperature of said second device to rise.

4,334,411

UNIQUE AIR CYCLE REFRIGERATION SYSTEM

George K. Payne, Rancho Palos Verdes, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Mar. 11, 1980, Ser. No. 129,545
Int. Cl.³ F25B *9/00*
U.S. Cl. 62—86 **36 Claims**



1. A fluid conditioning system for working fluid provided by a source thereof and to be supplied to a substantially enclosed space having fluid inlet and a plurality of fluid outlet port means, comprising:

(a) heat exchange means having first and second fluid passageways in heat exchange relationship, each of said fluid passageways having fluid inlet and outlet means, said fluid inlet means of said first fluid passageway being coupled to the working fluid source;

(b) fluid energy extraction means defining a fluid passageway having fluid inlet and outlet means;

(c) first duct means coupled between said fluid outlet means of said first fluid passageway of said heat exchange means

and said fluid inlet means of said fluid energy extraction means;

(d) second duct means coupled between one of the outlet port means of the enclosed space and said fluid inlet means of said second fluid passageway of said heat exchange means; and

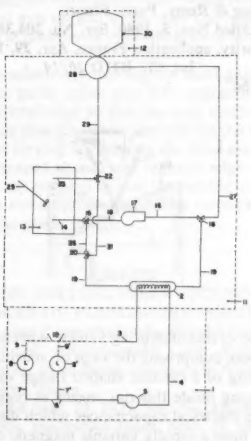
(e) third duct means having an inlet means coupled to said fluid outlet means of said fluid energy extraction means and having fluid outlet means coupled to the fluid inlet port means of the enclosed space, said third duct means having fluid inlet port means disposed intermediate said outlet means of said fluid energy extraction means and said fluid outlet means of said third duct means.

4,334,412

COOLING SYSTEM

Robert Wildfeuer, 85 Floral Dr. W., Plainview, N.Y. 11803

Filed Nov. 15, 1979, Ser. No. 94,742
Int. Cl.[3] F25D *17/00*
U.S. Cl. 62—333 10 Claims



1. In a system for cooling an enclosure having a cooling load comprising:

(a) A cooling zone containing a conduit in said enclosure for cooling fluid, said conduit encountering said load, means in said conduit for propelling said cooling fluid through said conduit and cooling fluid within said conduit;

(b) A refrigeration zone containing a closed refrigeration circuit for refrigerant, chiller means in said circuit for extracting energy from said refrigerant, means in said circuit for circulating said refrigerant and refrigerant within said circuit; and

(c) Collection means connected to said refrigerant zone for removing energy extracted by said chiller means;

said refrigeration and cooling zones being connectable by a exchanger means for transfering energy from said cooling fluid to said refrigerant;

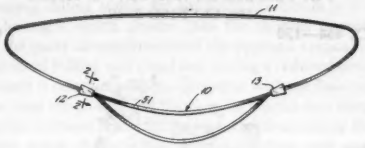
the improvement wherein said refrigerant in said closed circuit comprises a slurry of ice and water subject to cyclic differentials in the amounts thereof and said circuit includes a reservoir for storage of said slurry.

4,334,413

ADJUSTABLE NECKLACE CONSTRUCTION

Paul Gaston, 99 Alta Ave., Yonkers, N.Y. 10705, and Morton W. Schwartz, 305 E. 24th St., New York, N.Y. 10010

Filed Nov. 10, 1980, Ser. No. 205,106
Int. Cl.[3] A44C *25/00*
U.S. Cl. 63—2 4 Claims



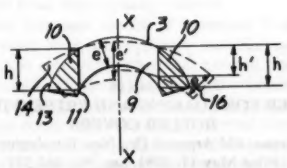
1. In an improved adjustable length necklace, including a single length of chain and first and second adjustment elements, each mounting an end of said chain and having resilient means bearing upon a segment of said chain adjacent an opposite end, the improvement comprising: said adjustment elements including first and second casing members, said first casing member including a main wall of generally planar trapezoidal configuration, a pair of converging side walls defining openings at each end thereof; said second casing member including a main wall, first and second converging side walls defining corresponding openings at each end thereof; said walls on said first and second casing members having cooperating latching means thereon including an elongated opening in each of one pair of walls and a resilient tongue on each of a second pair of walls, said tongues including a first offset portion and a second rectilinear portion lying in a plane substantially parallel to that of a respective wall; said first and second casing members being maintained in nested relation by the mutual engagement of said latching means; and a trapezoidally-shaped terminal block attached to each end of said chain, and maintained in position between said first and second casing members.

4,334,414

UNIVERSAL JOINT YOKES

Gerard Stephan, Croissy, France, assignor to Nadella, France

Filed Dec. 27, 1979, Ser. No. 107,518
Claims priority, application France, Jan. 17, 1979, 79 01080
Int. Cl.[3] F16D *3/26*
U.S. Cl. 464—134 9 Claims



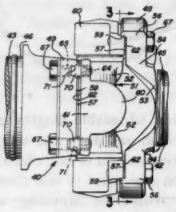
1. A universal joint yoke having arms of which the axial cross-sections in the region of the bores have end portions that are inturned towards the yoke's rotational axis to enable a bore depth to be obtained that is greater than that of the bores of a yoke of equivalent radial size formed from the same thickness material and having arms wherein the corresponding section is part circular.

4,334,415

UNIVERSAL COUPLING SPIDER BEARING AND YOKE

Michael F. Hopkins, Aurora, and Alvin D. Mayerchin, Oswego, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00083, § 371 Date Jan. 27, 1980, § 102(e) Date Jan. 27, 1980, PCT Pub. No. WO81/02187, PCT Pub. Date Aug. 6, 1981
PCT Filed Jan. 28, 1980, Ser. No. 165,832
Int. Cl.³ F16D 3/40
U.S. Cl. 464—130 7 Claims



1. A spider bearing and yoke assembly (60,48,49) for a universal coupling (40) having a spider element (51) with plural legs (52) connecting two opposed rotatable shafts (42,43), the assembly comprising:

a yoke (48,49) carried adjacent the opposed ends (45,46) of each of the shafts (42,43) and having spaced parts (54);

a spider cap (60) located on each of said yoke parts (54) providing a journal for each leg (52) of the spider element (51);

one of said spider caps (60) and yoke parts (54) having a tapered key (70) extending axially outward toward the mating spider cap (60) and yoke part (54);

said mating spider cap (60) and yoke parts (54) defining a tapered keyway (71) adapted for cooperation with said key (70), said tapered keyway is smaller than said tapered key to prevent said key from moving completely into said keyway;

said tapered key (70) and keyway (71) lying parallel to an axis of the leg (52) of the spider element (51) and being displaced radially outward from said axis; and

securing means (67) for moving each of said spider caps (60) toward its respective yoke parts (54) to draw the spider cap (60) and yoke part (54) together into fixed axial relation, the tapers of said key (70) and keyway (71) being frictionally engaged to prevent relative radial and axial movement between the spider cap (60) and yoke part (54).

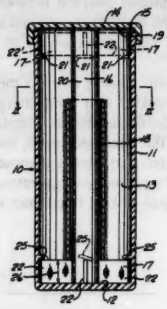
4,334,416

CONTAINER FOR SOAKING AND PRESERVING PAINT ROLLER COVERS

Peter S. Turano, 424 Argonne Dr., New Kensington, Pa. 15068

Filed May 11, 1981, Ser. No. 262,333
Int. Cl.³ D06F 1/12, 3/00
U.S. Cl. 68—213 6 Claims

1. A container for soaking and preserving paint roller cover sleeves or the like, comprising in combination, an open top receptacle having bottom and side walls for holding a quantity of solvent, a removable cap for sealing said open top, a post having an enlarged foot at the bottom end thereof for engaging the inside bottom of said receptacle to removably support said post in an upright position in said receptacle, said post being short enough to fit upright in said receptacle with said removable cap secured thereto and small enough in diameter to receive a paint roller cover sleeve thereover.

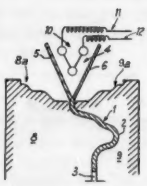


4,334,417

METHOD FOR MANUFACTURING VEHICLE-WHEELS BY A MAGNETO-FORMING PROCESS AND WHEELS OBTAINED BY THIS METHOD

Rene Victor, Nogent-sur-Marne, France, assignor to Etablissements Letang & Remy, Paris, France

Filed Nov. 5, 1980, Ser. No. 204,387
Claims priority, application France, Apr. 29, 1980, 80 09637
Int. Cl.³ B21D 26/14
U.S. Cl. 72—56 4 Claims



1. A method of manufacturing vehicle wheels by a magneto-forming process, comprising the steps of: starting from a wheel blank consisting of a circular shaped flange surrounded by a split rim; placing inside this rim, means as regular as possible supplied from electrical capacitances which discharge at high frequency to form a rapidly variable magnetic discharge; then placing around the lower portion of said split rim, cylindrical conformers having an outer wall reproducing the shape of the rim; and, when said conformers are in position, subjecting said split portion adapted to form the rim of the wheel to said rapidly-variable magnetic discharge so that the two components of said split rim are strongly applied by the discharge onto the outer surface of the conformers in order to make the rim.

4,334,418

PORTABLE STRIP STEEL CAMBER STRAIGHTENING MACHINE

William A. Grandell, Oak Lawn, Ill., assignor to Siegrand Corporation, Chicago, Ill.

Filed Jul. 18, 1980, Ser. No. 169,976
Int. Cl.³ B21D 3/02
U.S. Cl. 72—164 8 Claims

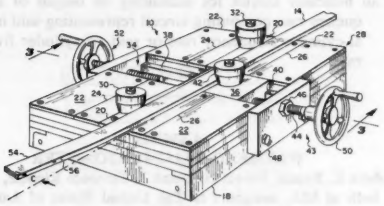
1. A portable machine for straightening cambered strip material passing therethrough as a continuous web, the cambered strip material having two opposed lateral edges and

being concave along one of the two edges, the machine comprising:

a. a base providing a substantially planar top having a longitudinal axis and a lateral axis, a guideway or slot extending along the lateral axis;

b. at least a pair of guide rollers mounted on the top aligned along said longitudinal axis and at a level spaced above the top, the rollers of the pair being on opposite sides of the lateral axis and being engageable with the concave one of said edges, the pair of rollers being rotatable around rotational axes normal to the top;

c. a mounting block slidable along the slot and a third guide roller fixedly mounted on the block and movable with the block along the lateral axis at the same level as the two



guide rollers and being engageable with the opposite lateral edge, the third guide roller being rotatable around a rotational axis normal to the top, and being selectively adjustable in position on opposite sides of said longitudinal axis; and

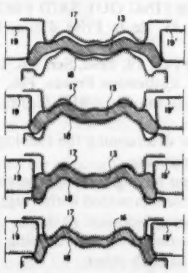
d. means for selectively moving the third guide roller relative to the guide roller pair into engagement with said opposite lateral edge so that the strip material is retained between the pair of guide roller and the third guide roller, said means serving to maintain the third guide roller frictionally engaged against said opposite edge sufficiently to bend the strip material against the camber and remove the camber as the strip material passes through the machine between the guide rollers.

4,334,419

METHOD FOR ROLLING STEEL SECTIONS HAVING FLANGES OR FLANGE-LIKE PORTIONS

Kanichi Kishikawa; Kazuo Watanabe; Hideki Tokita; Taneharu Nishino, all of Kitakyusyushi, and Seiichi Nagasoe, Munakatamachi, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Mar. 23, 1979, Ser. No. 23,236
Claims priority, application Japan, Mar. 29, 1978, 53/35566
Int. Cl.³ B21B *1/08*
U.S. Cl. 72—225 **5 Claims**



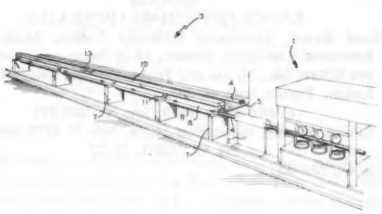
1. A method for rolling a steel section having flanges or flange-like portions from a steel bloom of rectangular cross section in a rolling mill comprising a series of roughing shaping rolling stands for roughing the bloom, a universal rolling mill stand having a pair of opposed horizontal rolls and a pair of opposed vertical rolls, and a series of finishing shaping rolling stands for finishing the shape rolled in the universal rolling mill, which method comprises: rolling the bloom in the roughing shaping rolling stands for roughing the bloom to a rough shape having a width greater than the shortest distance between the outer circumferences of the opposed vertical rolls in the universal rolling mill stand and having a reduced cross-section which is relatively flat as compared with the finished steel section, said rough shape portions to be shaped into flanges or flange-like portions in the finished steel section; rolling the thus obtained rough shape in the universal rolling mill stand for causing the pair of vertical rolls and the pair of horizontal rolls to carry out bending deformation mainly of the portions to be shaped into the flanges or flange-like portions; and finish rolling the thus deformed shape in the finishing shaping rolling stands for finishing the shape into the finished steel sections.

4,334,420

TUBE GUIDE

William M. Faulconer, Bartlesville, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla.

Filed May 6, 1980, Ser. No. 147,402
Int. Cl.³ B21B *41/00*
U.S. Cl. 72—250 **17 Claims**



1. In a pipe straightening machine comprising a pipe straightening unit having a pipe inlet end and a machine axis defining the location of the pipe axis in the straightening unit the improvement comprising a noise level reducing pipe end guiding unit comprising

(a) a first elongated section of essentially C-shaped cross section made from thermoplastic material,

(b) a second elongated section of essentially C-shaped cross section made from thermoplastic material, said first and second cross section together in the closed position of the unit forming a cylindrical compartment confining the whipping end of pipes straightened in said straightening unit, said cylindrical compartment having an internal diameter which is at least twice as large as the largest diameter of the pipe or tubing to be treated in said straightening unit, and having an open end facing said unit,

(c) hinging means connected to said first and said second sections with the hinge axis being parallel to the axis of said sections, to allow the opening of said cylindrical compartment,

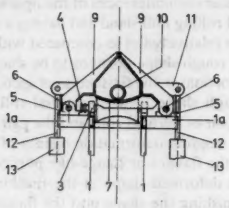
(d) support means supporting said first elongated section,

(e) stiffening means associated with said second elongated section.

4,334,421
DISCHARGE ROLL TABLE WITH A TOP COVER

Günter Ostlinning, and Alfred Steinmetz, both of Dusseldorf, Fed. Rep. of Germany, assignors to Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Sep. 9, 1980, Ser. No. 185,553
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939606
Int. Cl.³ B21C *35/00;* B21B *39/14;* B21D *45/00;* B65G *47/10*
U.S. Cl. 72—257 3 Claims

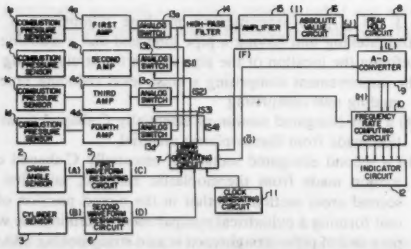


1. A discharge roll table for guiding a bar or tube discharged from an extrusion press, the table comprising a plurality of rollers for receiving the discharged bar or tube; a top cover extending along the table above the rollers, the cover being of substantially inverted V-shape cross section with a longitudinal top edge along which said cover is divided into two half covers pivotable on said table to the left and right thereof, respectively, each half cover being divided into cover sections aligned end to end; and lifting means arranged between the rollers, said half covers being fixedly connected at an angle to said lifting means for pivotable movement therewith, whereby extruded product may be lifted upwardly and to the left or right of said table.

4,334,422
KNOCK DETECTING APPARATUS

Hisasi Kawai, Toyohashi; Hidetaka Nohira, Mishima, and Kunimasa Yoshimura, Susono, all of Japan, assignors to Nippon Soken, Inc., Nishio and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Nov. 5, 1980, Ser. No. 203,571
Claims priority, application Japan, Nov. 9, 1979, 54-145803
Int. Cl.³ G01L *23/22*
U.S. Cl. 73—35 2 Claims



1. A knock detecting apparatus for an internal combustion engine having a plurality of cylinders, comprising:

vibration detecting means for detecting vibrations produced by a combustion event in each of the cylinders of said engine to generate an analog output corresponding to said vibrations, a peak value of said analog output being detected by sample-and-holding;

a sampling A-D converter circuit whereby a peak value of an analog vibration output generated from said vibration detecting means during a predetermined period near the top dead center of each said cylinder is extracted and converted to a digital quantity;

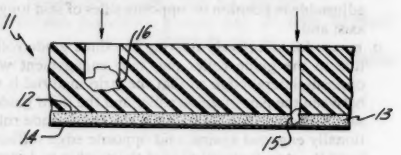
a frequency rate computing circuit for storing said digital quantity output from said sampling A-D converter circuit a predetermined number of times for each of said cylinders, producing an average value of said output data stored for each of said cylinders and determining a proportion of those of said stored data of each said cylinder which are greater than said average value by predetermined times to obtain an individual-cylinder frequency rate, said frequency rate computing circuit further producing an average value of said individual-cylinder frequency rates by the number of said cylinders to obtain an all-cylinder frequency rate; and

an indicator circuit for indicating an output of said frequency rate computing circuit representing said individual-cylinder frequency rate or said all-cylinder frequency rate.

4,334,423
WARHEAD FRAGMENTOMETER

Albert E. Rainis, Forest Hill, and J. Terrence Klopcic, Bel Air, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 28, 1980, Ser. No. 210,957
Int. Cl.³ G01N *33/22*
U.S. Cl. 73—35 4 Claims



1. A method of determining the fragment mass and patterns from an exploded warhead, which comprises:

(a) placing a stack of non-magnetic, penetratable panels in the path of the projecting fragments;

(b) disassembling the stack of panels; and

(c) feeding each panel through a reading device that determines the mass and location of each fragment in the respective panel.

4,334,424
PROCESS FOR DETERMINING THE RHEOMETRIC PROPERTIES OF MATERIALS AND APPARATUS CARRYING OUT SAID PROCESS

André Kepes, 22 Av. de la Prise d'Eau, Le Vesinet, France (78110)

Filed Feb. 19, 1980, Ser. No. 122,473
Claims priority, application France, Feb. 22, 1979, 79 04585
Int. Cl.³ G01N *11/14*
U.S. Cl. 73—59 3 Claims

1. Apparatus for determining the rheological properties of a fluid material comprising:

a first component having a cavity therein;

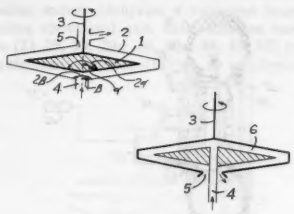
a second component mounted within said cavity, said second component being biconical in shape;

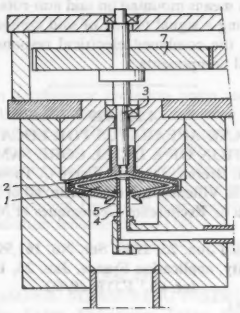
said first and second components being relatively rotatable with respect to each other;

means for effecting rotation of said first component relative to the other;

and conduit means for introducing and removing said fluid material from said cavity, said conduit means including an

inlet passage extending through the bottom of said cavity and through the second component, said conduit means





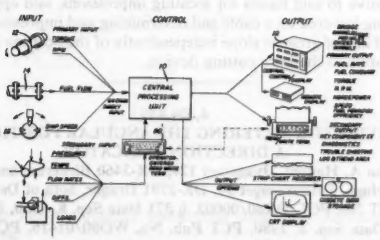
including an outlet passage disposed at the bottom of said cavity around and separated from said inlet passage.

4,334,425

SHIP EFFICIENCY ANALYZER

Harold E. Crane, 5015 River Rd., New Orleans, La. 70123

Filed Apr. 18, 1980, Ser. No. 142,372
Int. Cl.³ G01L *3/26*
U.S. Cl. 73—112 **10 Claims**



1. In a power plant having at least one main power transmitting drive shaft, a power plant efficiency monitoring system comprising:

RPM sensor means for sensing the rpm's of said drive shaft;

torque sensing means for sensing the torque transmitted by said drive shaft;

fuel flow sensing means for sensing the rate of fuel supplied to said power plant;

first calculation means for calculating fuel use of said power plant in terms of power transmitted by said drive shaft;

display means for displaying said sensed rpm, said second torque, and said calculated fuel use in terms of power transmitted;

storage means for storing indications of said calculated fuel use in terms of power transmitted;

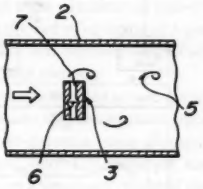
secondary sensor means for measuring levels of internal parameters of said power plant; and means for storing said measured levels of said internal parameters and correlating changes in said internal parameters with changes in said calculated fuel use in terms of power transmitted.

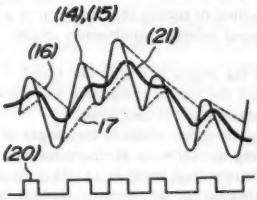
4,334,426

KARMAN VORTEX TYPE FLOW MEASURING APPARATUS

Toru Kita, Yokohama, and Hiroshi Kobayashi, Yokosuka, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 22, 1980, Ser. No. 123,570
Claims priority, application Japan, Feb. 26, 1979, 54/20774
Int. Cl.³ G01F *1/32*
U.S. Cl. 73—118 **3 Claims**





1. A Karman vortex type flow measuring apparatus including a duct through which flows a fluid whose flow rate or flow velocity is to be measured, and a columnar vortex shedding member extending within the conduit transversely of the flow direction of the fluid, the flow rate or flow velocity of the fluid being measured by detecting the frequency of the vortex shedding induced by the vortex shedding member, comprising:

means to detect the frequency of the vortex shedding and convert the detected frequency into an electrical signal;

a comparator having a pair of input terminals, one of which is supplied with the converted electrical signal, and the other with a slice level signal with which the converted electrical signal is compared; and

means to determine the slice level such that the slice level is varied in accordance with the fluctuation of the converted electrical signal;

said slice level determining means comprising a highest peak holding circuit and a lowest peak holding circuit which respectively hold the highest and the lowest peak voltage levels of the output electrical signal of the detecting means, the slice level determining means generating an output voltage signal which is between the highest and lowest peak voltage levels held by the peak holding circuits, respectively;

said peak holding circuits each comprising a delay circuit having a mutually different charging and discharging time constant, which is varied in response to variation in an operating parameter of a vehicle engine, e.g. revolutional

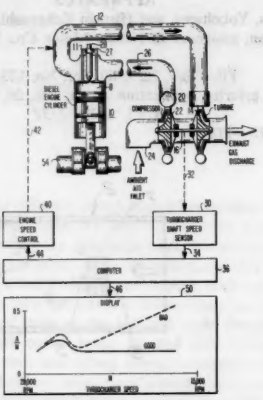
speed of the engine, throttle opening or boosted vacuum pressure in a suction air conduit.

4,334,427

TESTING THE CONDITION OF A TURBOCHARGER

Lee R. Armstrong, Newtonville, Mass., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 20, 1980, Ser. No. 198,457
Int. Cl.³ G01M *15/00*
U.S. Cl. 73—118 **2 Claims**



1. The method of testing the condition of a turbocharger in a turbocharged internal combustion engine, comprising the steps of:

operating the engine at a high idle speed,

shutting off the fuel to the engine and allowing the engine and turbocharger to decelerate,

measuring the speed of the turbocharger as it decelerates,

determining the D/N vs. N characteristic, where N is the turbocharger shaft speed and D/N is the absolute value of the turbocharger deceleration divided by turbocharger shaft speed, and

comparing the slope of the D/N vs. N characteristic with a nearly zero slope of a normal turbocharger to see whether there is an excessive slope due to sliding friction in the turbocharger.

4,334,428

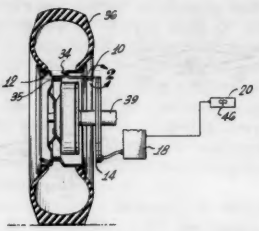
APPARATUS FOR INDICATING PARAMETERS SENSED ON A ROTATABLE WHEEL

Raoul G. Fima, 24901 Cienega La., Mission Viejo, Calif. 92675, and Jacques E. Mahieux, 24 Rue des Bleuets, 91440 - Bures, Yvette, France

Continuation-in-part of Ser. No. 902,967, May 4, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,633
Int. Cl.³ B60C *23/02*
U.S. Cl. 73—146.5 **34 Claims**

1. For use in a vehicle having a wheel and axle structure, an apparatus for providing on the non-rotatable structure of the vehicle a signal representing a parameter measured on said wheel, said apparatus comprising:

first and second electro-magnetically coupled components, one of said components being mounted on said wheel and the other of said components being mounted on said non-rotatable structure, said first component being a coil formed by at least one loop and arranged to oppose said second component as said wheel rotates, the configuration of said coil being such that it produces a directional magnetic field extending toward said second component to interact therewith, said field extending in a direction other than toward said axle; and



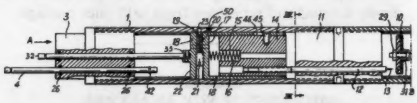
interrogation means mounted on said non-rotatable structure for supplying a signal to one of said components and for measuring the combined electrical response of said first and second components.

4,334,429

METHOD AND APPARATUS FOR LOCATING THE POSITION OF A DRILL CORE SAMPLE

Jean-Paul R. H. Breton, Jargeau; Pierre C. Thomassin, Salbris, and Bernard E. Villeneuve, Romorantin, all of France, assignors to Bureau de Recherches Geologiques et Minieres, Paris, France

Filed Jun. 23, 1980, Ser. No. 161,991
Claims priority, application France, Jun. 26, 1979, 79 16444
Int. Cl.³ E21B *49/00*
U.S. Cl. 73—151 **13 Claims**



1. An apparatus for locating the position of a drill core sample relative to the lower line of greatest slope of a drilling, comprising at least one means for locating impressions of the tip of the core, and means for locating the line of greatest slope relative to said means for locating impressions, said apparatus being lowered on a cable and determining said impressions and said line of greatest slope independently of the position thereof relative to the core cutting device.

4,334,430

DEVICE FOR METERING THE ANGULAR POSITION OF A DIRECTION INDICATOR

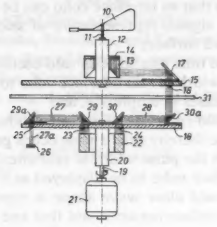
John A. Hansen, Byagervej 129, DK-3460 Birkerod, and Steen Hogh, Fasanvaenget 94, DK-2791 Dragor, both of Denmark

PCT No. PCT/DK80/00002, § 371 Date Sep. 8, 1980, § 102(e) Date Sep. 3, 1980, PCT Pub. No. WO80/01416, PCT Pub. Date Jul. 10, 1980
PCT Filed Jan. 8, 1980, Ser. No. 209,703
Claims priority, application Denmark, Jan. 8, 1979, 69/79
Int. Cl.³ G01P *13/02, 5/07*
U.S. Cl. 73—189 **10 Claims**

1. A device for metering the angular position of a direction indicator (**10**) mounted rotatably about an axis, said device comprising a reference member (**18**) mounted rotationally about said axis and having driving means (**21,44**) for continuously rotating said reference member in a predetermined direction, means (**26**) for providing a reference signal at least once each revolution of said reference member, means (**14**) for providing once each said revolution a measuring signal in a timed relationship to said reference signal, said relationship

being a function of said angular position of said direction indicator, and means (40) for determining said angular position on the basis of said reference and measuring signals,

characterized in that said reference and measuring signal providing means comprise a radiation source (45; 56) extending about said axis, first radiation beam directing means (23–25, 29, 29a, 30, 30a; 46, 47; 51) rotating with said reference member (18) so as to direct once each



revolution a reference radiation beam and a measuring radiation beam from said radiation source to a first radiation sensing means (26) and to second radiation beam directing means (13, 16, 17; 48; 60), respectively, said second directing means being rotatable with said direction indicator (10) and adapted to direct said measuring radiation beam received from said first directing means to a second radiation sensing means (14).

4,334,431

ULTRASONIC MEASURING INSTRUMENT

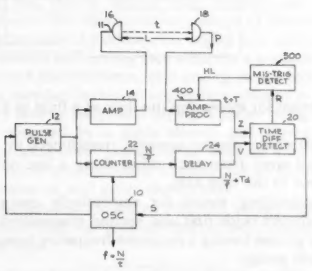
Masaru Kohno; Yukia Nakagawa; Takeo Kada, and Gunzi Okawara, all of Kawasaki, Japan, assignors to Fuji Electric Company, Ltd., Tokyo, Japan

Filed Aug. 8, 1979, Ser. No. 64,820

Claims priority, application Japan, Aug. 9, 1978, 53/96953

Int. Cl.³ G01F *1/66;* G01N *29/02*

U.S. Cl. 73—597 **6 Claims**



1. An ultrasonic-signal transit-time measuring instrument, including:

a voltage-controlled oscillator having an output terminal and a control terminal;

a synchronized pulse generator having a signal input terminal coupled to said output terminal of said oscillator and having a pulse output terminal;

a transmitting transducer adapted for acoustic coupling to a medium to be tested, said transmitting transducer having an excitation terminal;

said excitation terminal being coupled to said pulse output terminal for generating an acoustical pulse from said transmitting transducer in response to an electrical pulse applied to said excitation terminal;

a receiving transducer having an electrical signal output terminal and being responsive to said acoustical pulse, upon its travel through said medium to produce a cyclical electrical signal at said electrical signal output terminal, said receiving transducer being adapted for acoustical coupling to said medium to be tested;

an amplifier-processor having a first input terminal coupled to said electrical signal output terminal of said receiving transducer, second and third input terminals and a signal-arrival-signal output terminal;

a counter having first and second input terminals and an output terminal, said first input terminal being connected to said pulse output terminal of said pulse generator, said second input terminal being coupled to said output terminal of said oscillator for the application of an oscillation signal to said second input terminal of said counter;

means coupled between said second input terminal of said counter and said output terminal thereof for producing, in response to the application of a pulse to said first input terminal from said pulse generator an end-of-count signal corresponding to the end of counting of a pre-determined number of cycles of said oscillation signal applied to said input terminal of said counter;

a time-difference detector coupled to said output terminal of said counter to receive said end-of-count signal therefrom, said time-difference detector being also coupled to said signal-arrival-signal output terminal of said amplifier-processor to receive a signal-arrival-signal therefrom, said time-difference detector having a correction-signal output terminal and being responsive to said end-of-count signal and said signal-arrival-signal to produce, at its correction-signal output terminal a correction signal corresponding to the time difference between the application of said end-of-count signal and said signal-arrival-signal to said time-difference detector, said correction-signal output terminal of said time-difference detector being coupled to said control terminal of said oscillator, the sign of said correction signal being such as to, when applied to said oscillator, reduce said correction signal;

said amplifier-processor including first and second comparators, each having a signal input terminal, a comparison voltage terminal, an output terminal and a strobe terminal, each of said signal input terminals being coupled to said electrical signal output terminal of said receiving transducer;

said comparison voltage terminal of said first comparator being connected to a source of a first reference voltage greater than zero;

said comparison voltage terminal of said comparator being connected to zero potential;

said output terminal of said first comparator exhibiting a "one" condition when said output signal from said receiving transducer exceeds said first reference voltage;

said output terminal of said second comparator exhibiting a "one" condition when said output signal from said receiving transducer is negative;

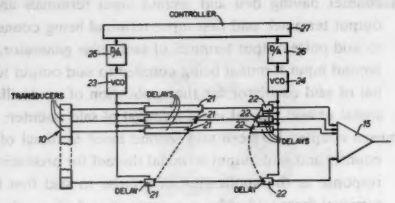
second counting means coupled to said output terminal of said second comparator and responsive to signals therefrom to produce an output signal following the occurrence of a predetermined number of output signals from said second comparator;

and NAND-gate means responsive to said output signal from said second counting means for producing a signal representing the arrival time of said acoustical signal at said receiving transducer.

4,334,432
ULTRASONIC LINEAR ARRAY BEAMFORMING METHOD AND APPARATUS

Robert W. Gill, Rozelle, Australia, assignor to The Commonwealth of Australia - Dept. of Health, Australia

Filed Feb. 19, 1980, Ser. No. 122,602
Claims priority, application Australia, Feb. 20, 1979, PD7760
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—602 **8 Claims**



1. A method of steering and focusing a linear array of acoustic transducers comprising applying an independent delay to the signal received by each transducer of the array in accordance with a relationship which has both linear and quadratic terms in x, characterised in that

(a) the linear term is a combination of a steering component which is a function of sin θ and x, together with a linear correction function; and

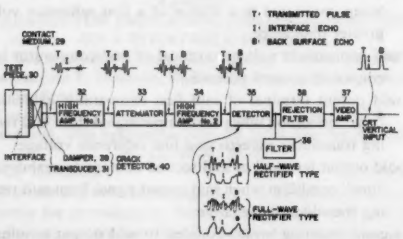
(b) the quadratic term is a combination of a focusing component, which is a function of r and x^2 with a quadratic correction function;

where θ is the steering angle of the beam, r is the distance of the desired focus point of the beam from the centre of the array, and x is the distance of a transducer from the centre of the array.

4,334,433
METHOD AND APPARATUS FOR MEASURING THICKNESS OF CLAD STEEL

Shizuo Takahashi; Satoru Matsumi; Toshiyuki Sugiyama, and Susumu Takeda, all of Muroran, Japan, assignors to Japan Steel Works, Ltd., Tokyo, Japan

Filed May 20, 1980, Ser. No. 152,053
Claims priority, application Japan, Nov. 25, 1978, 53-145520
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—629 **4 Claims**



1. A method for measuring the thickness of various layers of a multilayered metal member having at least a first surface, a second surface and an interface surface between said first and second surface comprising the steps of:

providing contact detecting terminal means having wide-band and high damping means and supersonic wave crack detector means having wide-band amplifying means at a position adjacent said first surface of said metal member;

coupling said crack detector to an oscilloscope having a continuously adjustable time scale;

displaying pulses representative of said first and second surfaces on said oscilloscope by operation of said contact detecting terminal means and said supersonic wave crack detector means;

maintaining a displaying pulse representative of said first surface at a zero level by appropriate rejection of signals produced by said crack detector and increasing the gain thereof so that an interface echo can be seen between said displayed signals representative of said first surface and said second surface;

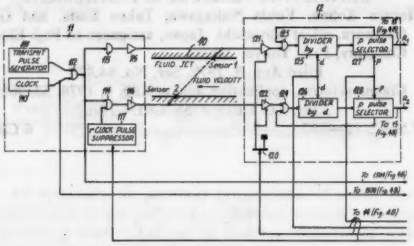
adjusting the time axis scale of said oscilloscope to increase the pulse width of said interface echo so that said interface echo increases in amplitude; and

increasing said rejection of signals produced by said crack detector to thereby delete noise echos generated from said increase in the pulse width of said interface echo to cause said interface echo to be displayed as a clear wave shape whereby said clear wave shape is representative of said interface surface between said first and second surfaces.

4,334,434
ULTRASONIC FLOW RATE METER

Jean G. Appel, Le Plessis Robinson, and Francois M. Dunand, Paris, both of France, assignors to Office National d'Etudes et de Recherches Aerospatiales O.N.E.R.A., Chatillon, France

Filed Apr. 8, 1980, Ser. No. 138,580
Claims priority, application France, Apr. 11, 1979, 79 09207
Int. Cl.³ G01F *1/66*
U.S. Cl. 73—861.29 **3 Claims**



1. A device for measuring the flow of a fluid in a tube comprising:

two ultrasonic electro-acoustic transducers in said tube, spaced apart from each other along a line oblique with respect to the tube axis;

pulse generating means for respectively energizing said transducers with first and second transmitted electrical pulse groups having a recurrent frequency between pulses in each group;

said transducers producing first and second received electrical pulse groups at said recurrent frequency responsive to reception by each transducer of an acoustic pulse group from the other transducer;

frequency divider means connected to said pulse generating means and said transducers for dividing the recurrent frequency of the first and second transmitted and received electrical pulse groups by a given factor d for respectively converting each pulse of each group of pulses into a respective pulse train characterized by said d factor;

circuit measuring means for measuring a first delay between the beginning of the first transmitted pulse train and the first received pulse train and for measuring a second delay between the beginning of the second transmitted pulse train and the beginning of the second received pulse train;

said circuit measuring means further measuring a third delay between the beginnings of the first and second received

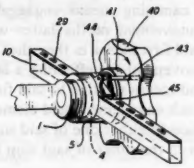
pulse trains and also measuring a fourth delay between the beginnings of the first and second transmitted pulse trains;
flip-flop means for subtracting the fourth delay from the third delay to thereby obtain a corrected delay; and
said circuit measuring means dividing said corrected delay by the product of said first and second delay to provide a result which is proportional to the fluid flow.

4,334,435

SEALING APPARATUS

Günter T. Tkatschenko, Muhlheim, and Gunther Franke, Darmstadt, both of Fed. Rep. of Germany, assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Aug. 4, 1980, Ser. No. 174,782
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1979, 2934434
Int. Cl.³ G01N *31/08*
U.S. Cl. 73—864.86 **15 Claims**



1. A sealing apparatus adapted to be punctured by a needle; said apparatus comprising:
an injection block having a passage therein adapted to receive a needle, said block having a sealing face at one end thereof;
a unitary sealing body of self-sealing material, said body having one major surface thereof facing said sealing face of said block; said major surface being complementary to said sealing face of said block;
a cap releasably mounted to said block at said one end thereof, said cap having an injection port therein aligned with said injection passage, said cap being adapted to accept said unitary sealing body between said injection port thereof and said injection passage of said block;
means, integral with said cap, for urging said unitary sealing body against said sealing face whereby a pressure seal can be formed therebetween, said urging means including an urging member having an urging face adapted to abut said unitary sealing body, said urging member being cooperatively directed by a guide sleeve; said urging member being a handwheel guided on an external thread on said guide sleeve and including a central pin directed towards the interior of said guide sleeve; and
means, cooperatively engaged with said unitary sealing body for controlling the position thereof with respect to said sealing face.

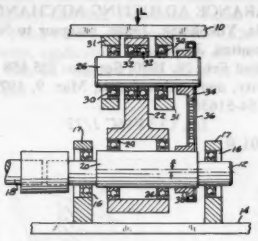
4,334,436

BEARING ARRANGEMENT FOR OSCILLATING SHAFTS

Eugene P. Bonzack, Livonia, Mich., assignor to F. Jos. Lamb Company, Warren, Mich.

Filed Aug. 21, 1980, Ser. No. 180,125
Int. Cl.³ F16H *21/22, 57/04*
U.S. Cl. 74—44 **7 Claims**

1. In combination, a support, a rotatable shaft having a central axis, first lubricated bearing means journalling said shaft on said support for rotation about said central axis, an arm, second bearing means journalling one portion of said arm on said shaft for oscillation about the axis of the shaft, means applying a unidirectional radial load on said first and second bearing means, means for oscillating said arm about the axis of the shaft through an angle of substantially less than 180°, means for rotating said shaft while said arm is being oscillated, a second support, a second shaft spaced generally parallel to said first shaft, third bearing means journalling the second shaft on



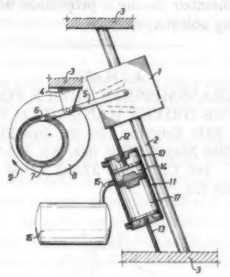
a second support, fourth bearing means journalling another portion of said arm on said second shaft, said arm transmitting said load to said third and fourth bearing means and means for rotating the second shaft while said arm is being oscillated.

4,334,437

ARRANGEMENT FOR THE COMPENSATION OF INERTIA FORCES IN THE RECIPROCATING DRIVING OF A MACHINE ELEMENT

Pär M. Andersson, Bjärred, Sweden, assignor to Tetra Pak International AB, Lund, Sweden

Filed Oct. 17, 1979, Ser. No. 85,733
Claims priority, application Sweden, Oct. 25, 1978, 7811076
Int. Cl.³ B60G *11/26*; F16H *25/08*
U.S. Cl. 74—53 **1 Claim**



1. An apparatus for compensating inertia forces comprising:
means for driving an element in a predetermined repeated reciprocating motion between substantially fixed first and second end points, said reciprocating motion having a vertical component;
first spring means for balancing the weight of the element, the first spring means comprises a first piston reciprocable in a first pneumatic cylinder having a first working chamber, the first piston being connected to the element;
second spring means for aiding movement of the element away from the second end point towards the first end point, the second spring means comprises a second pneumatic cylinder having a second working chamber, the second cylinder being reciprocable about a second piston, said second piston being connected to a fixed frame;
said working chambers being contained in a continuous cylinder having a wall fixed with respect to the continuous cylinder therebetween; and
the stroke length of the first piston is less than the distance between the first and second end points whereby the second cylinder moves after the first piston has moved

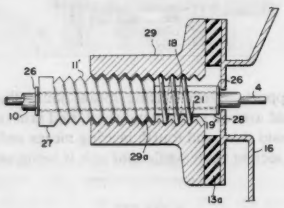
within the first cylinder to contact the fixed wall between the first and second working chambers.

4,334,438

CLEARANCE ADJUSTING MECHANISM

Haruo Mochida, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Feb. 28, 1980, Ser. No. 125,458
Claims priority, application Japan, Mar. 9, 1979, 54-27344; Apr. 25, 1979, 54-51638
Int. Cl.³ F16C 1/22
U.S. Cl. 74—501 R 9 Claims



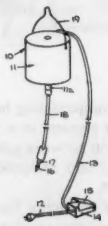
1. A clearance adjusting mechanism comprising:
a first member having an external thread;
a second member having an internal thread screwed with said external thread of said first member; and
a locking coil for locking the relative movement between said first and second members only in case of a predetermined rotation direction thereof, said locking coil being screwed with the internal thread of said second member, said first member having a projection which one end of said locking coil may contact.

4,334,439

POWER TRANSMISSION DEVICE FOR PLURAL POWER-DRIVEN HAND-HELD TOOLS

Jack Kadymir, 3030 Brighton 12th St., Brooklyn, N.Y. 11235

Filed May 5, 1980, Ser. No. 146,407
Int. Cl.³ F16H 57/00, 37/06
U.S. Cl. 74—665 GA 18 Claims



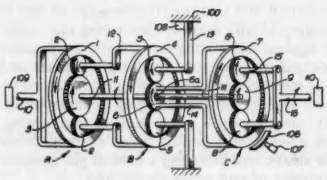
1. A power transmission device for a plurality of power-driven hand-held tools, comprising
(a) a main drive gear,
(b) a plurality of operating gears corresponding to said plurality of tools and each adapted to be driven by said main drive gear and to be connected to an associated one of said tools, and
(c) a plurality of gear shifting units for shifting said operating gears, respectively, into and out of meshing relation with said main drive gear, each of said gear shifting units comprising
(i) first means rotatably supporting the associated one of said operating gears, said first means being movable reciprocally for displacing said operating gear into and out of meshing relation with said main drive gear,
(ii) second means carried by said first means for reciprocal movement jointly therewith as well as lateral movement relative thereto, said second means having at least one projecting element movable therewith,
(iii) third means juxtaposed to said second means and providing a plurality of stop faces located so as to enable one or the other thereof to be engaged by said element upon movement of the latter with said second means and said first means in one direction of said reciprocal movement, said stop faces providing a pair of spaced end positions for said element and thereby for said first means and said associated operating gear one of which positions corresponds to that operating gear being out of, and the other of which positions corresponds to that operating gear being in, meshing engagement with said main drive gear, and
(iv) fourth means juxtaposed to said second means and constituting camming means engageable by said element upon movement of the latter with said second means and said first means in the other direction of said reciprocal movement for effecting a lateral movement of said second means relative to said first means so that upon each such engagement said element is shifted out of juxtaposition to either one of said stop faces and into juxtaposition to the other of said stop faces.

4,334,440

AUTOMATIC TRANSMISSION

Hugo Fonck, 200 Richardson Dr., Mill Valley, Calif. 94941

Continuation-in-part of Ser. No. 950,128, Oct. 10, 1978, abandoned. This application Mar. 10, 1980, Ser. No. 128,670
Int. Cl.³ F16H 57/10, 3/44, 3/74
U.S. Cl. 74—789 10 Claims



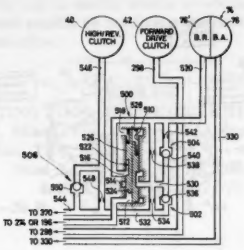
1. In a continuously varying automatic transmission, the combination comprising
(a) first, second and third gear sets spaced apart coaxially in that sequence, each including sun, planet and ring gears,
(b) the sun gears of the first and third gear sets being interconnected to rotate together, and the sun gear of the second set connected to the ring gear of the third set to rotate as a unit,
(c) and the planet gear or gears of the first set directly connected by planet gear carrier structure to the ring gear of the second set to rotate bodily therewith as a unit, said planet gear or gears of the first set being carried only by said carrier structure to allow rotation of said first set planet gear or gears relative to said carrier structure and relative to the ring gear of the second set, about an axis or axes defined by said planet gear or gears, the planet gear or gears of the second set at all times held by holding structure against rotation about an axis defined by said second gear.

4,334,441

GEARSHIFT TIMING CONTROL ARRANGEMENT FOR AUTOMATIC POWER TRANSMISSION

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Mar. 14, 1979, Ser. No. 20,591
Claims priority, application Japan, Aug. 7, 1978, 53-95918
Int. Cl.³ B60K 41/10
U.S. Cl. 74—868 6 Claims



1. In an automatic power transmission having at least two forward drive range ratios consisting of lower and higher forward drive gear ratios and including a transmission mechanism having a fluid operated first frictional unit contributive to the shifting to the higher forward drive gear ratio when it is engaged and a fluid operated second frictional unit contributive to the shifting to the higher gear ratio when it is disengaged and a hydraulic control system including actuating fluid pressure generating means for producing an actuating fluid pressure to be supplied selectively to the first and second frictional units, control pressure generating means for producing a control fluid pressure, first passageway means for passing said actuating fluid pressure toward said first frictional unit for causing engagement of the first frictional unit, second passageway means for passing said actuating fluid pressure therethrough toward said second frictional unit for causing disengagement of the second frictional unit, a gear shift valve means for permitting said actuating fluid pressure through said first passageway and through said second passageway means in accordance with a predetermined schedule which is determined in response to said control fluid pressure, a gearshift timing control arrangement for incorporation into said hydraulic control system, comprising:

first and second one-way flow restriction means arranged in series between said first passageway means and said second frictional unit, the first one-way flow restriction means intervening between the first passageway means and the second one-way flow restriction means and operative to pass fluid away from the second one-way flow restriction means toward said first passageway means without flow restriction therethrough and restrict the flow rate of the fluid to be passed in the opposite direction therethrough, the second one-way flow restriction means intervening between the first one-way flow restriction means and said second frictional unit and operative to restrict the flow rate of the fluid to be passed therethrough toward said second frictional unit,

bypass passageway means bypassing the second one-way flow restrictor means of the series combination of said first and second one-way flow restriction means; and

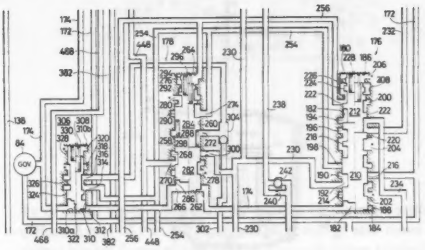
a gearshift timing valve provided in said bypass passageway means and responsive to said control fluid pressure for allowing said bypass passageway means to open when the control fluid pressure is lower than a predetermined value and closing the bypass passageway means when the control fluid pressure is higher than the predetermined value.

4,334,442

SHIFT VALVE ARRANGEMENT OF HYDRAULIC TRANSMISSION CONTROL SYSTEM

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Feb. 6, 1979, Ser. No. 9,626
Claims priority, application Japan, Sep. 29, 1978, 53-120982
Int. Cl.³ B60K 41/06; B60K 41/10
U.S. Cl. 74—869 6 Claims



1. In an automatic power transmission system including fluid operated frictional units to be selectively made operative to produce a plurality of forward drive gear ratios and a hydraulic control system including a source of an actuating fluid pressure to actuate each of the frictional units, a source of first control pressure indicative of the vehicle speed, a source of a second control pressure indicative of the throttle opening, and a source of kickdown pressure:

a shift valve arrangement for incorporation into the hydraulic control system comprising:

a shift valve including a switching valve element and a control valve element which are axially arranged in series and which have end faces, respectively, which are adjacent and opposite to each other,

said switching valve element being responsive to the first pressure for switching the directions in which the actuating fluid pressure is to be passed through said shift valve,

said control valve element being formed with a first pressure acting area to be acted upon by the second control pressure when said control valve element is in a first position, a second pressure acting area to be acted upon by the kickdown pressure when said control valve element is in a second position and a third pressure acting area to be acted upon by the kickdown pressure when said control valve element is in the first position;

a downshift valve including a valve member formed with a first pressure acting area to be acted upon by the first control pressure for urging said valve member to move in a first direction and a second pressure acting area to be acted upon by the second control pressure for urging said valve member to move in a second direction opposite to said first direction, and resilient biasing means urging said valve member to move in said second direction,

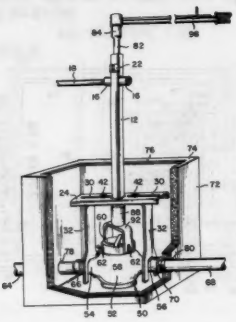
said downshift valve being responsive to the first control pressure and the second control pressure for providing a fifth pressure when a predetermined relationship between the first and second control pressures is satisfied; and

passageway means providing communication between said shift valve and said downshift valve for directing the fifth pressure from said downshift valve to said shift valve and applying the fifth pressure onto said end faces of said valve elements of said shift valve to urge said switching valve element toward the first position thereof when said valve member is moved in said second direction.

4,334,443
TORQUE STABILIZED WATER METER WRENCH

Bernard E. Pearson, 16445 9th SW., Seattle, Wash. 98166

Filed Feb. 7, 1980, Ser. No. 119,220
Int. Cl.³ B25B *13/00*
U.S. Cl. 81—55 14 Claims



1. A torque stabilized wrench for the disassembly and reassembly of water meters without requiring the removal of said water meter from its installed location, usually in a meter box below ground level, wherein said water meter is of the general type having:

a water meter body means having meter inlet and outlet means secured by connections to a water supply line and water delivery line, respectively;

metering means within said meter body for metering the water passing through said water meter; and

box ring means secured to said meter body means by a torqued connection means, said box ring means being for providing access to said metering means;

wherein said torque stabilized wrench comprises:

drive means for engaging and torquing said box ring means in a first direction;

means which rotatably carry said drive means and which are for engaging and torquing the meter body in a second direction opposed to said first direction;

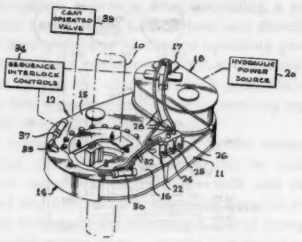
wherein said means for engaging and torquing the meter body include a pair of forks which define a pair of meter body recesses adapted to fit over and engage said meter body adjacent said meter inlet and outlet means, and further include a main stem and a support means which extends generally transversely with respect to said main stem and which defines a pair of elongated slots adapted to receive fastener means therethrough, said fastener means selectively and adjustably mounting said forks to said support means to enable the distance between said forks to be selectively adjusted to engage different sizes of water meter bodies; and

wherein during use of said wrench when the user torques said drive means in said first direction to in turn torque said box ring means in said first direction, the user simultaneously torques said means for engaging the meter body in said second direction to in turn torque said meter body in said second direction to prevent any significant rotation of said meter body, thereby preventing damage to said water meter, said water supply and delivery lines, and said connections during the torquing of the box ring while said meter is connected to said water supply and delivery lines.

4,334,444
POWER TONGS

Kenneth J. Carstensen, and John J. Staudt, III, both of Odessa, Tex., assignors to Bob's Casing Crews, Odessa, Tex.

Continuation of Ser. No. 919,365, Jun. 26, 1978, Pat. No. 4,215,602. This application Jul. 31, 1980, Ser. No. 174,040
The portion of the term of this patent subsequent to Aug. 5, 1997, has been disclaimed.
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—57.18 4 Claims



1. A power tong system for gripping and rotating a cylindrical element comprising:

a pair of spaced apart upper and lower head plates including oppositely facing guide slots disposed along a selected axis, the guide slots defining spaced apart and parallel side bearing surfaces;

a rotary member disposed between the head plates and movable relative thereto, the rotary member including an internal cam surface and outer teeth;

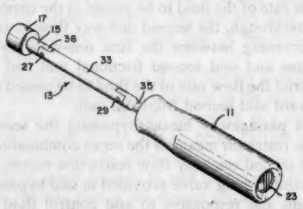
a pair of opposed heads between the head plates, each slidable in a facing pair of the guide slots along the selected axis, and each including a pair of spaced apart die means for engaging an interior cylindrical element and cam follower means for engaging the internal cam surfaces of the rotary member; and

drive means engaging the outer teeth of the rotary member and rotating the rotary member, whereby the cam follower means shifts the position of the heads radially relative to engage each pair of die means symmetrically relative to the cylindrical element and lock the head plates to the rotary member, the side bearing surfaces in the guide slots resisting torsional moments acting on the heads under load.

4,334,445
Z STYLE SPEED WRENCH

Richard R. Timewell, Seattle, Wash., assignor to R. T. Tool Co. Ltd., Canada

Continuation of Ser. No. 21,847, Mar. 19, 1979, abandoned. This application Mar. 12, 1981, Ser. No. 243,250
Int. Cl.³ B25B *13/00*
U.S. Cl. 81—177 PP 3 Claims



1. A tool, comprising:

an elongated, articulated shank having exactly two-swivel like joints which divide said shank lengthwise into, in

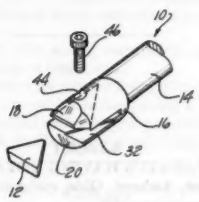
sequence, a head section, a middle section, and a base section, each of said sections being substantially straight and movable relative to each other in but a single plane, said head section including means permitting the joining of said head section to a nut or the like, said base section including a handle means which is rotatable relative to said base section, wherein the outermost end of said base section terminates within said handle means and wherein the combination of said base section and said handle means is substantially longer than said middle and head sections, respectively, so that, in operation, said head section, and hence the nut or similar article to which it is joined, may be rotated rapidly by revolving said handle means about a tool centerline.

4,334,446

CUTTING TOOL AND HOLDER THEREFOR

Peter Field, Miami, Fla., assignor to Approved Performance Tooling, Inc., Troy, Mich.

Filed Jul. 7, 1980, Ser. No. 166,717
Int. Cl.³ B23B *27/16, 27/22*
U.S. Cl. 82—36 R **3 Claims**



1. A cutting tool holder adapted for holding a cutting tool having a cutting face, comprising:

an elongate body having a pair of gripping members on one end thereof and having opposed, spaced apart faces for gripping said cutting tool therebetween,

one of said gripping members including a pair of outer edges extending toward each other and a third outer edge connecting said pair of edges to define a truncated corner, said cutting face extending outwardly beyond said truncated corner,

said gripping members being provided with relieved surface areas in the respective faces thereof defining a pair of retaining walls extending transverse to each other, one of said retaining walls communicating with said third outer edge,

said gripping member further including a chip breaking surface at said truncated corner and inclined with respect to said cutting face, said chip breaking surface having a height above said cutting face sufficient to engage a substantial portion of the length of a chip being cut by said cutting tool so as to deflect said chip.

4,334,447

CUTTER ASSEMBLY FOR DOUGH STRIPS

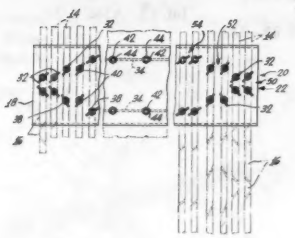
William E. Martin, and Harold E. Sumrall, both of Caldwell, Id., assignors to J. R. Simplot Company, Boise, Id.

Filed Jun. 9, 1980, Ser. No. 157,251
Int. Cl.³ A21C *5/00*; B26D *3/20*
U.S. Cl. 83—111 **14 Claims**

1. A cutter assembly for cutting a plurality of parallel dough strips each into a plurality of relatively short strip segments, comprising:

cutter blade mounting means for stroking motion toward and away from the dough strips; and

at least two rows of cutter blades mounted on said blade mounting means extending toward the dough strips for cutting engagement therewith upon stroking motion of said blade mounting means toward the dough strips, each of said rows of cutter blades including a plurality of relatively small blades positioned and angularly set at different angles with respect to said blade mounting means for cutting the different ones of the dough strips to form strip segments with ends cut at a variety of different angles, each of said small blades of each row being aligned with one of said small blades of the other row to form a plurality of small blade pairs each for cutting engagment with a different one of the dough strips, and each of said rows of cutter blades further including a relatively large blade for cutting engagement with a plurality of the dough strips, said large blade of each row being aligned with said large blade of the other row for cutting engagement with the same dough strips.

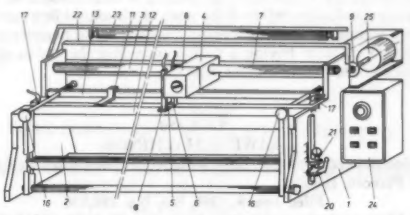


4,334,448

DEVICE FOR SHARPENING AND/OR FORMING THE PROFILE OF A SCREEN PRINTING SQUEEGEE

Elmar Messerschmitt, Paul-Hösch-Strasse 13, 8000 München 60, Fed. Rep. of Germany

Filed Sep. 27, 1979, Ser. No. 79,350
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1978, 2843904
Int. Cl.³ B26D *7/10*; B26F *3/12*
U.S. Cl. 83—171 **7 Claims**



1. A device for forming the profile of a silk screen printing squeegee which includes:

A. clamping means for resiliently holding the squeegee without deformation, which comprises:

1. a receiving member having a longitudinally disposed groove for grasping the edge of a squeegee which is not to be worked.

2. a vertically adjustable mounting means for supporting said receiving member and the squeegee carried thereby so that the working height of the edge of the squeegee to be worked can be vertically adjusted.

3. a front and rear lateral holding bar for firm but non-deforming engagement of said squeegee along its long axis and near the surface of the edge to be worked and along the cutting direction;

B. a heated cutting tool movable in a set horizontal plane along the long axis of said clamped squeegee.

4,334,449

APPARATUS FOR SEVERING PAPER WEBS OR THE LIKE

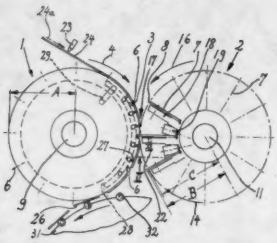
Werner Hinz, Hamburg, and Nikolaus Häusler, Oststeinbek, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. K.G., Hamburg, Fed. Rep. of Germany

Filed Nov. 18, 1980, Ser. No. 207,962

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947438

Int. Cl.[3] A24C 5/58

U.S. Cl. 83—342 17 Claims



1. Apparatus for subdividing a running web into discrete sections, particularly for transverse severing of an adhesive-coated web which is to yield a succession of uniting bands for draping around groups of coaxial rod-shaped articles, comprising first and second carriers rotatable about parallel axes and respectively having a plurality of first and second elongated cutting edges disposed in substantial parallelism with the respective axes, each of said first cutting edges cooperating with a second cutting edge during rotation of said carriers to sever a web which is fed between said carriers, said first carrier further having axially parallel recesses adjacent to the respective first cutting edges and successive second cutting edges penetrating into the oncoming recesses during rotation of said carriers relative to each other; and means for rotating said carriers in opposite directions including mating first and second gears which are respectively coaxial with said first and second carriers, said first cutting edges being disposed at the periphery of a first cylinder having a radius which at least approximates the radius of the pitch circle of said first gear and said second cutting edges being disposed at the periphery of a second cylinder having a radius exceeding the radius of the pitch circle of said second gear.

4,334,450

SAWING MACHINES

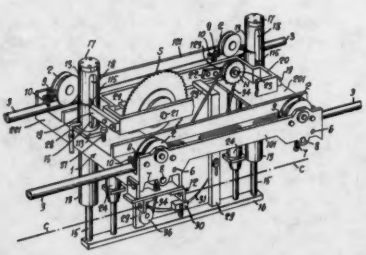
Gino Benuzzi, Bologna, Italy, assignor to Giben Impianti S.p.A., Pianoro, Italy

Filed Jun. 9, 1980, Ser. No. 158,020

Claims priority, application Italy, Jun. 20, 1979, 15215/79[U]

Int. Cl.[3] B26D 1/18; B27B 5/18

U.S. Cl. 83—471.2 4 Claims



1. Sawing apparatus of the type comprising a horizontal workpiece support table having a longitudinal slot defining a cutting line, and a circular saw mounted on a carriage reciprocably movable along a path parallel to and beneath said cutting line, said carriage having a supporting frame (1) movable along horizontal guides (3), wherein

(a) said circular saw and means for rotatably driving said saw are mounted on a structure which is vertically movable on said supporting frame means being provided for effecting up-and-down movement of said structure;

(b) said structure comprising at least a pair of vertical parallel rods (15) slidable within vertical tubular guides (13) secured to said supporting frame;

(c) said vertical rods (15) having conically shaped upper ends, and said vertical tubular guides (13) having, at their upper ends, downwardly facing hollow conical seats;

(d) whereby, at the end of the upward stroke of said structure with respect to said supporting frame, said conical ends of said vertical rods snugly fit into said conical seats of said tubular guides.

4,334,451

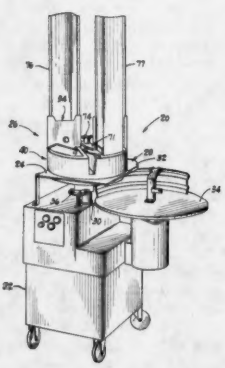
SLICING APPARATUS HAVING ROTARY MAGAZINE

Louis A. Bettcher, Amherst, Ohio, assignor to Bettcher Industries, Inc., Birmingham, Ohio

Filed Jul. 28, 1980, Ser. No. 172,657

Int. Cl.[3] B26D 7/01

U.S. Cl. 83—703 13 Claims

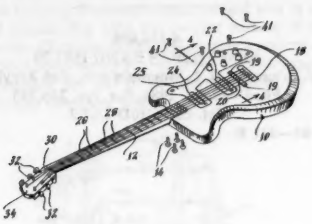


1. A machine for slicing comestible products, comprising a stand, a rotary knife, a product-holding magazine for moving a product past the knife, and means for rotatably supporting and driving the magazine; said magazine including a base member rotatable about a central axis, an opening through the base member for passage of product, a separable product receptacle supported by the base member, aligned with the opening, and means securing the product receptacle to the base member for convenient removal, said securing means including a location pin fixed to one of the base member and receptacle, and a receptacle retainer spaced from the pin, said receptacle pivotably engaging the locating pin and said retainer having parts on both the base member and receptacle interengageable through relative pivoting of the base member and receptacle about the pin.

4,334,452
PLASTIC MUSICAL INSTRUMENT BODY HAVING STRUCTURAL INSERT

White H. Morrison, III, Franklin, Tenn., and Everette L. Vest, High Point, N.C., assignors to Norlin Industries, Inc., White Plains, N.Y.

Filed Jul. 11, 1980, Ser. No. 158,536
Int. Cl.[3] G10D *1/08, 3/00;* G10H *3/18*
U.S. Cl. 84—1.16 19 Claims



1. A solid body for a stringed musical instrument, said body having a predetermined shape including a profile shape, comprising:

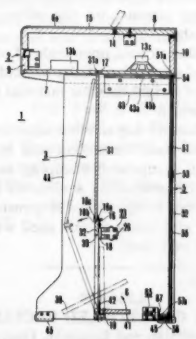
a body molded of a plastic material in the shape of said musical instrument body; and

a structural support member substantially embedded within said plastic body, said member having a profile shape and being dimensioned such that it is generally a reduced scale version of the profile shape of said body.

4,334,453
KEYBOARD MUSICAL INSTRUMENT WITH REMOVABLE BOX LEG

Shinji Kumano, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Feb. 28, 1980, Ser. No. 125,802
Claims priority, application Japan, Mar. 9, 1979, 54/29214[U]
Int. Cl.[3] G10C *3/02*
U.S. Cl. 84—177 12 Claims

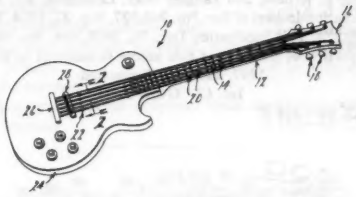


1. A keyboard musical instrument housing designed for easy assembly and disassembly, said housing comprising a main body and a box-shaped leg portion for supporting said main body, said main body including a keyboard portion and an enclosure for housing electronic components to work in combination with said keyboard portion, said leg portion including a pair of laterally spaced parallel side boards for supporting said main body, mutually spaced front and back boards bridging said side boards and being arranged in laterally spaced parallel fashion and connecting means mounted at respective corners created between said boards constituting said leg portion, said connecting means including hinges for connecting said side boards to said main body so that said side boards are adapted to be folded in parallel with the underside of the main body, and spring biased locking means for connecting said front and back boards to said side boards, the front and back boards being detachably fixed to the main body and the side boards in cooperation with said spring biased locking means.

4,334,454
GUITAR BRIDGE

Rendal Wall, Parchment, Mich., assignor to Norlin Industries, Inc., White Plains, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,714
Int. Cl.[3] G10D *3/04*
U.S. Cl. 84—299 20 Claims



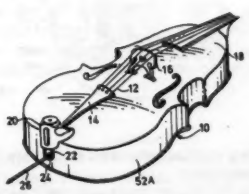
1. An improved guitar bridge adapted to extend laterally under the longitudinally extending strings of a guitar for the support thereof, said bridge having a plurality of longitudinally spaced mounting apertures on opposite ends thereof for effecting primary control of the fundamental frequency of said guitar strings, said bridge also having a plurality of individual secondary control means for adjusting the frequency of each of said guitar strings, whereby said longitudinally spaced mounting apertures provide a plurality of ranges over which said secondary control means may be used for said adjusting of the frequency of each of said guitar strings.

12. An improved guitar bridge adapted to extend laterally under the longitudinally extending strings of a guitar for the support thereof, said bridge having a plurality of string saddle seats, a plurality of longitudinally movable string saddles in said seats, screw means associated with each of said string saddles adjustable to effect locking of said saddles in said seats, and an insert associated with each of said string saddles to permit positioning of the associated string at more than one height.

4,334,455
TONE IMPROVING DEVICE FOR A STRINGED MUSICAL INSTRUMENT

Jonathan Beecher, 95 Old Rd., Headington, Oxford, England

Filed Jul. 7, 1980, Ser. No. 166,375
Int. Cl.[3] G10D *3/12*
U.S. Cl. 84—302 7 Claims



1. A tone improving device for a stringed musical instrument of the type in which the strings extend over a bridge resting on the table of the instrument and are secured to a tailpiece, comprising adjustable means adapted to modify the angle between

the table of the instrument and the part of the strings extending from the bridge to the tailpiece thereby to control the force exerted by the bridge on the table of the instrument due to the tension in the strings without substantially varying the tension in the strings, wherein the angle modifying means comprises spacer means adapted to engage with the edge of the table adjacent to the tailpiece and to support the tailgut attached to the tailpiece of the instrument at a distance above the table which may be varied in accordance with the force required to be exerted by the bridge on the table.

4,334,456

GUITAR NECK FRET ASSEMBLY

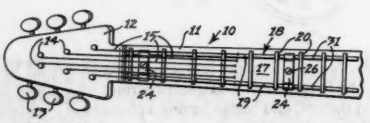
James O. Martin, 249 Ridgewood Rd., Goodlettsville, Tenn. 37072; Rex D. Fathergill, Rte. 6, Frankfort, Ky. 40601, and David L. Krimm, 286 Tangley Way, Lexington, Ky. 40503

Continuation-in-part of Ser. No. 944,927, Sep. 22, 1978, Pat. No. 4,189,974. This application Dec. 10, 1979, Ser. No. 102,371

The portion of the term of this patent subsequent to Feb. 26, 1997, has been disclaimed.

Int. Cl.³ G10D *3/06*

U.S. Cl. 84—314 R **7 Claims**



1. A fret assembly for a stringed musical instrument including an elongated neck body having a top surface, comprising:

(a) a pair of elongated, substantially parallel, support rods,

(b) a plurality of elongated fret members fixed transversely parallel to each other and longitudinally spaced on, and raised from one longitudinal surface of, said support rods,

(c) clamp means for mounting said support rods longitudinally on the top surface of the elongated neck body of a stringed musical instrument to support said fret members transversely of said neck body and at least partially raised above said support rods and said top surface, but beneath the strings of said stringed musical instrument.

4,334,457

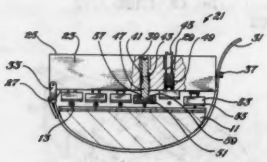
CAPO

Paul R. A. Spoonts, III, 5948 Callston La. No. 2030, Fort Worth, Tex. 76112

Filed Jun. 26, 1981, Ser. No. 277,705

Int. Cl.³ G10D *3/04*

U.S. Cl. 84—318 **7 Claims**



1. A capo for a musical instrument of the type having a neck and strings, comprising:

a pressure bar having an upper and lower surface and being adapted to extend across said neck;

mounting means for removably attaching said pressure bar on said neck;

an adjusting screw for each string extending through said pressure bar, each of said adjusting screws having an adjusting head accessible from said pressure bar upper surface and a lower end, the lower ends being located in a single line transverse to the lengths of the strings;

a pad mounted on each of said adjusting screw lower ends, each of said pads being adapted to contact a select one of said strings; and

indexing means for indexing said adjusting screws individually upward and downward with respect to the pressure bar to position each adjusting screw for depressing each string against the neck.

4,334,458

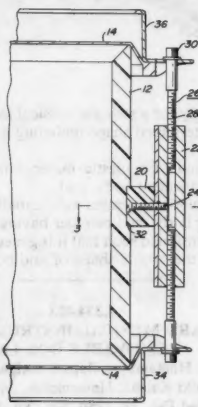
SUSPENSION BAND DRUM

Robert N. Grauso, R.D. 1, Mountain Ave., Pen Argyl, Pa. 18072

Filed Feb. 20, 1981, Ser. No. 236,393

Int. Cl.³ G10D *13/02*

U.S. Cl. 84—411 R **13 Claims**



1. A musical drum which comprises:

(a) a body shell having an open end at top and bottom and having inner and outer circumferential surfaces, said shell having a slotted channel on the outer circumferential surface of said shell,

(b) heads disposed over said open ends of said shell,

(c) hoops disposed circumferentially around said heads,

(d) a spacer ring of a rigid, flexible material disposed within said slotted channel,

(e) a suspension band having an inner and outer circumferential surface, said band encircling said spacer ring, said suspension band comprising clamping means positioned on the outer circumferential surface of said suspension band attaching said hoops to said suspension band so as to tautly maintain said heads on said shell without requiring any piercing of said shell.

4,334,459

MECHANICALLY CONTROLLED VACUUM BOOSTER

Peter Riedel, Hattersheim, and Lucas H. Haar, Niddatal, both of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Apr. 24, 1980, Ser. No. 143,384

Claims priority, application Fed. Rep. of Germany, May 10, 1979, 2918909

Int. Cl.³ F15B *9/10*; F16J *3/02*

U.S. Cl. 91—369 B **11 Claims**

1. A mechanically controlled vacuum booster comprising:

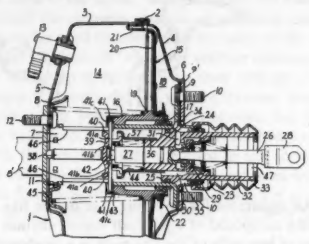
a low pressure housing having a longitudinal axis, one end wall for mounting said booster to a support wall and the other end wall for mounting a force receiving device to said booster;

a tube disposed in said pressure housing coaxial of said axis

interconnecting both said end walls of said pressure housing, said tube having longitudinal slots therein adjacent said other end wall;

a movable wall disposed in said pressure housing coaxial of said axis slidably sealed to the outer surface of said tube and dividing said pressure housing into a working chamber and a vacuum chamber, said moveable wall acting, via connecting members projecting through said slots, on a pressure bar disposed in the interior of said tube extending to said force receiving device;

a control housing disposed coaxial of said axis in a slidably sealed relationship with the interior surface of said tube, said control housing containing therein a pressure controlling valve operable by a control bar normally spaced from said pressure bar and in an operative relation with said connecting members; and



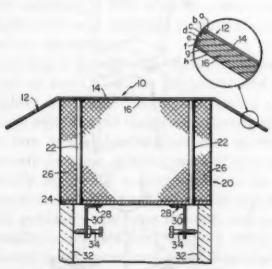
said connecting members being only reaction levers having one surface facing said one end wall of said pressure housing and the other surface facing said other end wall of said pressure housing, the radially outer end of said one surface of said levers abutting said moveable wall, the radially inner end of said one surface of said levers abutting said control bar and the intermediate area of said other surface of said levers between the inner and outer ends thereof abutting said pressure bar said movable wall including a sliding casing guided on the outer surface of said tube extending parallel to said axis toward said other and wall of said pressure housing, said sliding casing having an end thereon facing said other end wall of said pressure housing, and said radially outer end of said one surface of said levers abut said end of said sliding casing.

4,334,460

CAP FOR A CHIMNEY

John J. Simmons, Cleveland, and Douglas W. Hutson, Englewood, both of Tenn., assignors to Giles Arthur Ellis, Cleveland, Tenn., a part interest

Filed Jun. 3, 1980, Ser. No. 156,126
Int. Cl.³ F23L *17/02*
U.S. Cl. 98—83 **1 Claim**



1. A cap for a chimney comprising:

a heat resistant cover having a topside and an underside extending across the chimney in superposed and spaced relation thereto;

a support means attached to the underside of the cover for supporting the cover in superposed and predetermined spaced relation above the chimney;

a plurality of adjustable detachable mounting means attached to the support means for detachably mounting the cover to the chimney, said mounting means being adjustable to accommodate the opening in the chimney, the cover comprising heat resistant layers, from the topside to the underside:

(a) a gelatinous heat resistant layer,

(b) a heat resistant polyester resin containing antimony trioxide,

(c) a fiberglass reinforced mat,

(d) a heat resistant polyester resin containing antimony trioxide,

(e) a fiberglass reinforced mat,

(f) a heat resistant polyester resin containing antimony trioxide,

(g) a ceramic fiber, and

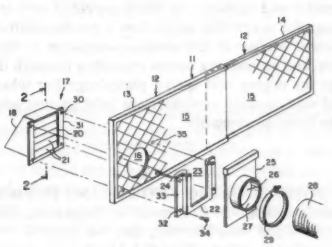
(h) a heat resistant polyester resin containing antimony trioxide.

4,334,461

PORTABLE WINDOW DRYER VENT

Arthur Ferguson, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Nov. 15, 1979, Ser. No. 94,449
Int. Cl.³ F24F *13/18*
U.S. Cl. 98—119 **2 Claims**



1. A portable window dryer vent unit comprising a window insert assembly adapted for removable insertion in a window opening, said assembly comprising a screen with a bracket mounted on the inner side of said screen and an exterior exhaust vent mounted on the outer side of said screen in alignment with said bracket, said vent and bracket including means extending through said screen securing said bracket and vent on said screen, including an opening through said screen aligned with an opening through said bracket and the inlet to said vent in further combination with a plate removably mounted on said bracket having a flange surrounding an outlet through said plate aligned with said opening through said screen, in further combination with means for mounting a hose on said flange.

4,334,462

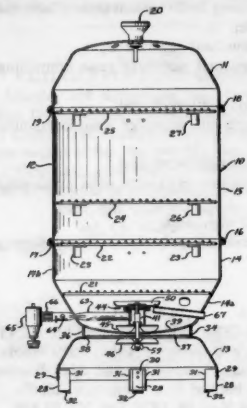
GAS-FIRED COOKING APPARATUS

Dennis V. Hefling, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.

Filed Nov. 13, 1980, Ser. No. 208,829
Int. Cl.³ A47J *37/06*
U.S. Cl. 99—385 **7 Claims**

1. A cooking apparatus comprising a base having an upper surface, a cooking container above the base, the cooking con-

tainer having a lower surface, support means between the cooking container and the base for supporting the cooking container above the base, each of the upper surface of the base and the lower surface of the cooking container being provided with a central air opening, a first spring plate below the central opening in the upper surface of the base, a second spring plate above the central opening in the lower surface of the cooking container, said first spring plate being compressible and resilient and being provided with at least one air passage for permitting air to flow from the base through the central opening in the upper surface of the base, said second spring plate being compressible and resilient and being provided with at least one air passage for permitting air to flow from the central opening in the lower surface of the cooking container to the cooking container, and connecting means extending through the central openings for urging said spring plates together whereby said base and said cooking container are held against said support means to form an assembly.

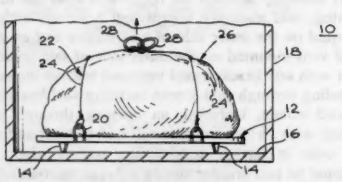


4,334,463

FOOD COOKING AND LIFTING DEVICE

Elizabeth L. Goldie, 734 E. Stepney St., Inglewood, Calif. 90302

Filed Nov. 28, 1980, Ser. No. 211,077
Int. Cl.³ A47J *43/18*
U.S. Cl. 99—426 **7 Claims**



1. An improved food cooking and handling device, said device comprising, in combination:

(a) a perforated food rack having a plurality of depending legs secured thereto for support of said rack in a cooking container above the bottom thereof; and

(b) securing means including

(i) a plurality of strings adapted to releasably tie a bulky item of food in place on said rack for cooking in said cooking container and to facilitate lifting of said food from said container while tied to said rack and transferring it to another location, the lower ends of said strings being connected to said rack, and

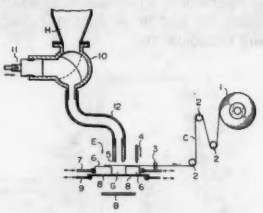
(ii) means securing the upper ends of said strings together to support and hold said bulky item of food in place on said rack.

4,334,464

APPARATUS FOR ENCRUSTING JAM

Tatsuo Shinriki, Chiba, Japan, assignor to Height Inc., Matsudo, Japan

Filed Jan. 13, 1981, Ser. No. 224,833
Claims priority, application Japan, Jan. 16, 1980, 55-3197
Int. Cl.³ A21C *9/00*
U.S. Cl. 99—450.6 **4 Claims**



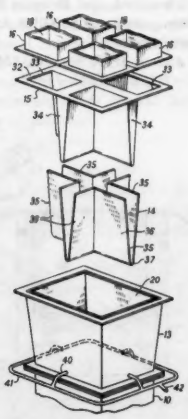
1. An apparatus for covering jam or the like characterized by being composed of a jam ball supply section for delivering a series of jam balls or the like each in a predetermined amount on a conveyer belt, a wafer-film supply section for supplying a series of wafer-films each in a predetermined dimension beneath said jam balls, a rolled dough skin supply section for conveying and putting rolled dough skins on said jam balls on said conveyer belt, and encrusting means including a clamp mechanism for puckering skirt portions so that each of said jam balls or the like primitively stuck with said wafer-film is then encrusted in each of said rolled dough skin.

4,334,465

METHOD AND APPARATUS FOR PROCESSING AND PACKAGING CHEESE

Ian P. Brockwell, Wyckoff, N.J., and Karl J. G. Martensson, Lund, Sweden, assignors to Alfa-Laval Cheddar Systems Limited, Yeovil, England

Filed Jul. 8, 1980, Ser. No. 166,833
Claims priority, application Australia, Jul. 26, 1979, PD9739
Int. Cl.³ A01J *25/11*; A23C *19/02*
U.S. Cl. 99—454 **7 Claims**



1. Apparatus for forming large blocks of cheese from pre-

pared cheese curd for packaging and maturing, comprising an upright hollow trunk of rectangular cross section, said trunk having internal transverse dimensions substantially equal to that of the desired blocks of cheese, a tubular frusto-conical casing of rectangular cross section mounted in an inverted position on said trunk, a partition of cruciform shape mounted inside the frusto-conical casing, four upright tubular casings of rectangular cross-section mounted on the frusto-conical casing, a perforated lining on the inside walls of each of the upright casings, said linings forming four hollow columns and said partition sub-dividing the interior of the frusto-conical casing into four ducts connecting the interiors of the columns with the interior of said trunk, means for feeding prepared cheese curd into said columns so as to fill the trunk with a mass of curd and at least partly fill the columns with curd supported on the mass of curd in the trunk, vacuum means for maintaining the interiors of the columns at a sub-atmospheric pressure during feeding of the curd therein whereby some of the moisture in the curd is "flashed off" together with air entering with the curd, said linings co-operating with their casings to form drainage passages therebetween for whey expressed from the curd in the lower end portions of the columns due to the weight of curd superimposed thereon, means for lowering the mass of curd in the trunk so that the curd in the lower end portions of the columns flows into the trunk and fuses with the curd therein to form a pillar of curd, and means for severing the lower end of said pillar of curd to form a block of cheese.

4,334,466

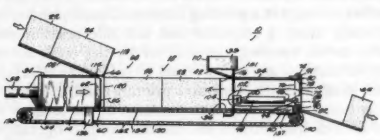
HIGH PRESSURE HAY REBALER

Delvin A. Spiegelberg, Box 46, Rte. 2, Hortonville, Wis. 54944

Filed Sep. 2, 1980, Ser. No. 183,602

Int. Cl.³ B65B *13/20*

U.S. Cl. 100—4 **9 Claims**



1. A rebaling press adapted to produce a highly compressed bale of fibrous material from slightly compressed bales of fibrous material, comprising:

a. a longitudinally extending compression chamber having substantially rigid top, bottom, and side lateral walls, an upstream end wall comprising a ram longitudinally movable between upstream and downstream extremes of movement, and a downstream end wall comprising an exit gate, said compression chamber having an upstream portion, an intermediate portion, a downstream portion, and a downstream direction of flow;

b. feed means adapted to feed slightly compressed bales of fibrous material to said upstream portion of said compression chamber, comprising:

i. a feed opening in the top wall of said compression chamber sized to accomodate a predetermined number of said slightly compressed bales and having an upstream end nearly adjacent the upstream extreme of movement of said ram and a downstream end upstream of the downstream extreme of movement of said ram;

ii. a generally horizontal measuring platform within said compression chamber attached to the top of said ram, disposed generally upstream thereof, and positioned to substantially cover said feed opening when said ram is at its downstream extreme of movement and to substantially uncover said feed opening when said ram is at its upstream extreme of movement; and

iii. means to continuously supply said slightly compressed bales via said feed opening onto said measuring platform responsive to downstream movement of the measuring platform;

c. means to reciprocate said ram between its upstream and downstream extremes of movement, whereby to alternately load said compression chamber with a pre-determined number of slightly compressed bales and to compress said pre-determined number of slightly compressed bales to form a single highly compressed bale;

d. binding means adapted to prevent said highly compressed bale from re-expanding substantially;

e. means to open and close said exit gate; and

f. ejection means to eject said highly compressed bale from said rebaling press.

4,334,467

ROTARY BALER WITH SIDE PRESSURE RELEASE

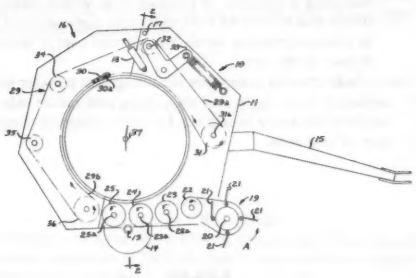
Kazuteru Nishibe, Sapporo, and Naoji Furukawa, Hokkaido, both of Japan, assignors to Farmhand Inc., Grinnell, Iowa

Filed Jun. 16, 1980, Ser. No. 159,818

Claims priority, application Japan, Jun. 22, 1979, 54-86299

Int. Cl.³ B30B *5/04*

U.S. Cl. 100—89 **7 Claims**



1. In a baling apparatus of the type which includes a wheeled frame adapted to span a windrow of hay and be moved forwardly therealong, two opposed plates mounted at the sides of said frame to define the sides of a baling chamber and confine the ends of a forming bale, means in said chamber for forming the windrow into a spiral bale as the apparatus is moved forwardly, said means including endless means which has a lower bale rolling run that may contact hay in the chamber and roll it forwardly, and means for releasing a finished bale for discharge from said chamber, the improvement comprising:

guide means mounted on the frame;

a boss to which the central part of one of said plates is affixed, said boss being mounted for lateral movement in said guide means;

and a hydraulic cylinder unit mounted on the frame with a piston rod operatively connected to the boss to move said one of said plates laterally outwardly from a normal position to reduce confining force on the ends of the bale at the time of bale discharge, and to return said one of said plates to normal position after a bale is discharged.

4,334,468

DOUBLE BELT PRESS

Manfred Güttinger, Stuttgart, and Konrad Schermutzki, Remseck, both of Fed. Rep. of Germany, assignors to Sandvik Conveyor GmbH, Fellbach, Fed. Rep. of Germany

Filed Apr. 24, 1980, Ser. No. 143,518

Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922151

Int. Cl.³ B30B *5/06*

U.S. Cl. 100—93 RP **6 Claims**

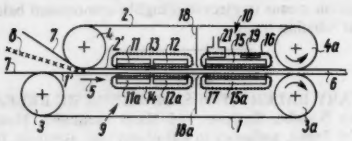
1. A double belt press comprising:

a pair of endless steel belts revolving in opposite directions

with mutually facing sides thereof forming a nip through which material is to be passed,

a plurality of treating assemblies spaced along said nip for pressing said belts together and controlling the temperature of said belts, each of said assemblies comprising:

a pair of temperature-controlled stationary press plates disposed within respective ones of said belts for pressing such belts against material passing through the nip, said press plates including means for controlling the temperature thereof, and



a pair of revolving chains traveling around respective ones of said press plates, each chain defining a working side disposed in said nip and a return side, each chain including a plurality of rotating rolls which travel between and in contact with said press plate and said belt to transmit pressing forces and thermal energy from the former to the latter,

one of said treating assemblies including heat transfer means arranged to act upon said rolls along said return side and adjacent the entry to said nip for controlling the temperature of said rolls.

4,334,469

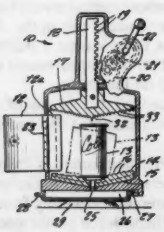
CAN CRUSHER

Douglas Tanner, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed May 30, 1980, Ser. No. 154,902

Int. Cl.³ B30B *9/04, 9/32*

U.S. Cl. 100—110 **5 Claims**



1. A can crusher, comprising in combination, a hollow housing, a side door on said housing, a conical base inside said housing and upon which a tin can may be rested, and a vertically movable pressure plate correspondingly conical mounted in said housing and movable from an upper position above said door to a lower position below said door including means for moving said plate located above said plate, in further combination with a door hinge located between opposite vertical edges of said door providing an inwardly disposed door portion which functions as a stop for said plate when the door is opened, said base having stepped surfaces with drainage holes therethrough.

4,334,470

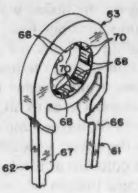
PRINT HEAD WITH ENDLESS BANDS AND SPACER

Paul H. Hamisch, Jr., Franklin, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Continuation-in-part of Ser. No. 801,886, May 31, 1977, abandoned. This application Jun. 13, 1980, Ser. No. 159,021

Int. Cl.³ B41J *1/20*

U.S. Cl. 101—111 **14 Claims**



1. A print head, comprising: two spaced sets of axially aligned and rotatably mounted drive wheels, each drive wheel having a central hole, a series of teeth disposed at the inner periphery of the central hole of each wheel, a support having means providing a supporting surface, two spaced sets of printing bands received under tension about the supporting surface and the respective drive wheels of each set, each print band having a series of printing elements, means for detenting the printing bands so that the printing elements are registerable with a printing zone, a stationary non-printing spacer disposed between the sets of wheels, the spacer including an annular portion having a hole, a series of teeth disposed at the inner periphery of the spacer hole, the central holes and the spacer hole being axially aligned to provide an axially extending opening, the drive wheel teeth and the spacer teeth being aligned when the drive wheels are detented, the support being effective to support a printing element of each printing band at a printing zone, a rotatable and shiftable selector movable axially in the opening, the selector having teeth cooperable with the teeth of any drive wheel to rotate the selected drive wheel to advance the respective printing band, the teeth on the spacer being cooperable with the teeth of the selector to provide smooth transition of the selector from cooperation with the drive wheel teeth of one set to the drive wheel teeth of the adjacent set, the spacer further including a pair of depending spacer members joined to the annular portion, straddling the support and extending between adjacent sets of printing bands, each spacer member having a free end portion, the spacer being of one-piece molded plastics construction, the free end portions extending close to but terminating short of the supporting face, the spacer members being flexible and resilient, the spacing between the free end portions before assembly with the support being less than the thickness of the support so that when assembled the spacer members are spread slightly to resilient hold the spacer to the support.

4,334,471

REFERENCE PRINTING ON MOVING SURFACE

Mark S. Noyes, Keene, and Andrew G. Perra, Jr., North Swanzey, both of N.H., assignors to Markem Corporation, Keene, N.H.

Filed Aug. 18, 1980, Ser. No. 179,237

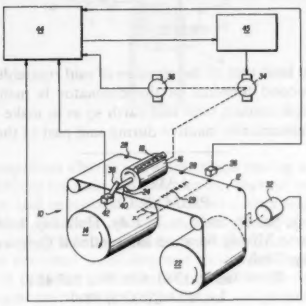
Int. Cl.³ B41F *13/02*

U.S. Cl. 101—228 **12 Claims**

1. A printing system for use in printing indicia on a moving web having a series of evenly spaced web marks for controlling the spacing between the indicia printed on the web, said web moving from a position upstream of a printing position, to the printing position where the indicia are formed, and to a position downstream from the printing position, comprising:

(a) a rotary print head having at least one printing element disposed thereon for printing the indicia on the moving web;

(b) means for rotating the print head at a velocity substantially equal to the velocity of the moving web to form the indicia on the moving web when the printing elements contact the moving web at the printing position;
(c) means for detecting each web mark to produce a web signal in response to the movement of each web mark past a detection position;
(d) means for generating a START signal after the closest downstream web mark has moved a predetermined percentage of the distance between adjacent web marks from the printing position;
(e) means for detecting when each printing element rotates



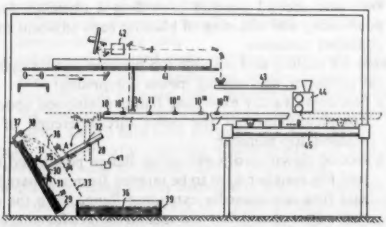
to a predetermined rest position at which the printing element is not in contact with the web, and for producing a STOP signal in response to the detection of said rest position;
(f) means for activating the means for rotating in response to the START signal to cause the leading edge of the indicia to be printed on the web at the printing position when the printing position is separated from the closest downstream web mark by a distance which is equal to the predetermined percentage of the distance between adjacent web marks; and
(g) means for stopping the means for rotating in response to the STOP signal.

4,334,472

MECHANISM FOR FEEDING AND TRANSPORTING PRINTING PLATES

Günter Back, Diedenbergen, and Klaus-Peter Schön, Wiesbaden, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 2, 1981, Ser. No. 250,126
Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012761
Int. Cl.³ B41B *15/32*
U.S. Cl. 101—382 MV **18 Claims**



1. A mechanism for feeding printing plates to an exposure table, which exposure table includes a suction plate for holding a printing plate in place, the printing plates being fed to the exposure table in a transport direction, each printing plate having a forward part which approaches the exposure table first during feeding of the printing table in the transport direction, each printing plate having a pair of lateral edges, the mechanism comprising:

a plurality of transport rollers;

a plurality of drive rollers, said transport and drive rollers cooperating with each other;

said transport and drive rollers being mutually so arranged as to include two rows of rollers with a space between each row, each row including a plurality of transport rollers and at least one drive roller, said rollers being arranged so as to be in generally parallel relationship with the lateral edges of a printing plate which may be disposed in said space between said rows, said rows extending in the transport direction, each row including a transport roller which is the first roller relative to the transport direction in such row, whereby said two rows together include two first rollers; and

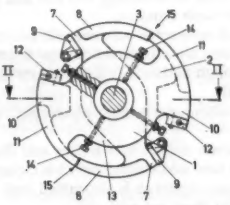
means for effecting swiveling movement of said two first rollers in an outward direction relative to said space between said rows to enable the forward part of each printing plate to be deposited on the suction plate of the exposure table without damage.

4,334,473

STORAGE CYLINDER

Willi Becker, and Arno Wirz, both of Bammental, Fed. Rep. of Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Fed. Rep. of Germany

Division of Ser. No. 46,058, Jun. 6, 1979, Pat. No. 4,303,014.
This application Apr. 16, 1981, Ser. No. 254,592
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2824733
Int. Cl.³ B41F *1/30*
U.S. Cl. 101—409 **4 Claims**

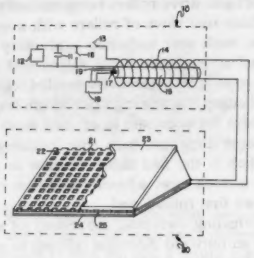


1. In a transfer cylinder for perfector printing machines having two diametrically opposed sheet-supporting surfaces formed from two groups, respectively, of sheet supports engaging comb-like one within the other, one of the two sheet-supporting groups of one sheet-supporting surface having a device for gripping the leading edge of a sheet, and both of the sheet-supporting groups forming one sheet-supporting surface being adjustable relative to one another about the rotary shaft of the transfer cylinder, each of said sheet supports of a respective sheet-supporting surface being firmly connected to a diametrically opposing sheet support of the other sheet-supporting surface and being disposed on the shaft of the transfer cylinder, the improvement therein comprising means for mounting together at least a plurality of the diametrically opposing, mutually firmly connected sheet supports so as to be radially adjustable.

4,334,474
WARHEAD INITIATION SYSTEM

David R. Coltharp, Vicksburg, Miss., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 21, 1976, Ser. No. 690,208
Int. Cl.[3] F42C *11/00*
U.S. Cl. 102—206 4 Claims



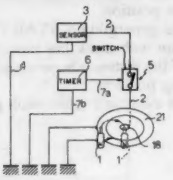
1. A warhead initiation system comprising:
an explosive filled warhead casing;
a copper mesh initiator embedded within said explosive filled casing formed of a chemically etched copper foil wherein there are formed bridgewires and a secondary explosive which coats said foil and is detonated thereby; and
a helical magnetic fluxtrapper power supply electrically connected to said copper mesh initiator for exploding said copper mesh initiator and thereby detonating the explosive within the warhead casing; said helical magnetic fluxtrapper power supply comprising:
a capacitor;
a first power supply for charging said capacitor;
a magnetic fluxtrapper including:
a detonator;
an explosive;
a hollow metal rod filled with said explosive and containing said detonator and said rod is connected to said copper mesh initiator; and
a coil of wire surrounding said rod and connected to said copper mesh initiator;
a first switch connected between said capacitor and said coil, which when closed, allows current from said capacitor to flow through said coil, said copper mesh initiator and said metal rod;
a second switch, which when closed, shorts out said capacitor; and
a second power supply which fires said fluxtrapper detonator at the time said second switch is closed, whereupon the fluxtrapper explosive is detonated and said hollow rod expands to short out said coil.

4,334,475
PROXIMITY FUSES

Enrico Turchi, Milan, Italy, assignor to Fratelli Borletti S.p.A., Milan, Italy

Filed Feb. 7, 1980, Ser. No. 119,443
Int. Cl.[3] F42C *15/40*
U.S. Cl. 102—206 5 Claims

1. A fuse provided with a detonator which is ignited by an electrical ignition signal, said detonator having a first terminal normally connected to earth and being supported by a rotatable member which can move said detonator from a first position in which it is substantially non-aligned with the first element of a pyrotechnic chain, and is therefore unable to transmit ignition to the chain, to a second position in which it is aligned with said first element and in which a second terminal of the detonator is in contact with a contact element at which said ignition signal arrives, said rotatable member being rotated by the centrifugal and inertia forces acting on the fuse and being controlled by a delay device arranged to allow said member to rotate in a predetermined time, wherein

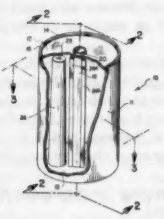


during at least part of the rotation of said rotatable member, said second terminal of the detonator is maintained in electrical contact with said earth so as to make said detonator electrically inactive during said part of the rotation.

4,334,476
PRIMER CUP

John T. Day, Sandy, and Lex L. Udy, Holladay, both of Utah, assignors to Mining Services International Corporation, Salt Lake City, Utah

Filed Jul. 2, 1980, Ser. No. 165,431
Int. Cl.[3] C06C *5/04*
U.S. Cl. 102—275.7 32 Claims

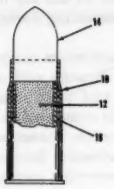


1. A primer cup for containing explosives comprising:
a cylindrical container;
a sealable top member which is initially removable to permit introduction of said explosives into said container;
a first conduit having thin wall construction extending through said container between the ends thereof with apertures at each end for providing a passage therethrough;
means attached to said first conduit for providing structural support thereto;
a second conduit having thin wall construction extending into said container from one end only, with an end piece capping its internal end and with an aperture at its mouth end, said second conduit providing a chamber for the positioning and retaining of blasting caps adjacent to said container contents;
means for sealing said sealable top member to said cylindrical container, said sealing means comprising:
a first downwardly extending flange positioned upon and completely around the outer circumference of said sealable top member;
a second downwardly extending flange positioned upon said top member so as to be interior from and parallel to said first downwardly extending flange with the adjacent edges of said first and second flanges forming a first groove therebetween;
a stepped top edge which extends around the entire top of said container, so as to conformably attach to said first groove in a nesting relationship.

4,334,477
WEAR REDUCER

Sydney Axelrod, 66 W. 94th St., New York, N.Y. 10025; Walter Brenner, 974 Columbus Dr., Teaneck, N.J. 07666, and Barry A. Rugg, 380 Riverside Dr., New York, N.Y. 10025

Filed Apr. 21, 1980, Ser. No. 142,196
Int. Cl.³ F42B 5/02, 9/02
U.S. Cl. 102—435 6 Claims

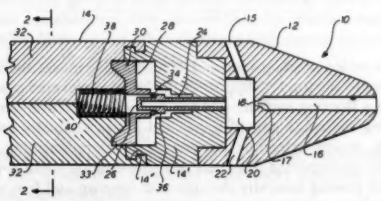


1. A propellant charge for ammunition having a propellant and an additive for reducing gun member thermal erosion upon ignition of said propellant, said additive comprising a sheet of highly water absorbent starch-acrylonitrile copolymer which has been subjected to alkaline saponification and a major amount of absorbed water disposed around said propellant and adapted to produce a relatively cool laminar layer of gas on adjacent gun members upon ignition of said propellant.

4,334,478
FLUIDIC RANGE-SAFE DEVICE

Michael J. Goes, Mine Hill; John R. Masly, Landing, and Albertus E. Schmidlin, Caldwell, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 3, 1980, Ser. No. 126,802
Int. Cl.³ F42B 9/20
U.S. Cl. 102—529 3 Claims



1. Fluidic range safe device which comprises;

a projectile having a leading nose portion and a generally cylindrical body portion located therebehind, said body portion including;

at least two complementary longitudinal segments adjacently disposed to form a cylindrically shaped body assembly, said body assembly having a plurality of cylindrical recesses axially located therein and a tongue-in-groove end;

a cylindrical forward body portion operatively disposed intermediate said longitudinal segments and said nose portion, said forward body portion snapfittably engaging said tongue-in-groove end of said longitudinal segments and to said nose portion;

means for thermally inducing disintegration of said body portion of said projectile further comprising;

a nozzle element axially disposed in said nose portion, said nozzle element tapering to a reduced diameter orifice;

an air vent assembly communicating with said orifice, said air vent assembly comprising an air collection chamber and air escape channels radiating therefrom;

temperature responsive fragmentation means located in said body portion in fluid registry with said air vent assembly, said fragmentation means adapted to respond to elevated temperature to cause said body portion to disintegrate which includes;

temperature transmitter means disposed within said body, said temperature transmitter adapted to absorb and transmit thermal energy, said transmitter means includes a temperature absorptive tube having an open end communicating with said air collection chamber, and an opposed closed end; and

fragmentation promoter means, disposed in registry with said closed end of said temperature absorptive tube, for overcoming the cohesive forces maintaining the integrity of said body portion, said promoter means includes;

retainer means for releaseably holding said longitudinal segments and said forward body portions together during projectile launch and flight, and for mechanically an non-explosively- allowing said longitudinal segments to separate from said forward body portion after said projectile has traveled a specified distance down range,

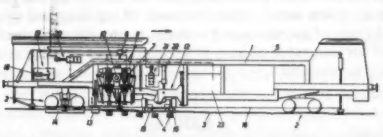
release means for biasedly urging said retainer means to maintain said longitudinal segments in engagement with said forward body portion during flight, and for releasing said longitudinal segments from said forward body portion after said projectile has traveled said specified distance; and

restraining means comprising a thermal responsive collapsive-element operatively coupled to said retainer means for preventing said release means from acting against said retainer means to cause unlocking of said longitudinal segments from said forward body portion prior to said restraining means reaching said elevated temperature.

4,334,479
METHOD AND APPARATUS FOR OBTAINING A CONTROLLED DEGREE OF BALLAST COMPACTION IN THE TAMPING AND LEVELING OF A TRUCK

Josef Theurer, Vienna, Austria, assignor to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Division of Ser. No. 438,264, Jan. 31, 1974, Pat. No. 3,910,195.
This application Mar. 6, 1975, Ser. No. 556,177
Claims priority, application Austria, Apr. 26, 1973, 3742
Int. Cl.³ E01B 27/17, 33/02
U.S. Cl. 104—12 17 Claims



1. A method of obtaining a controlled degree of ballast compaction in the tamping and levelling of a track consisting of rails mounted on ties having two elongated edges extending transversely of the rails and two ends extending in the direction of the rails, the rails and ties intersecting at points spaced in the direction of elongation of the track and the ties resting on ballast, the tract being lifted to a leveled position in relation to a reference system and ballast being tamped under the ties independently of the lifting, comprising the steps of

(1) compacting the ballast under the points of the intersection by vibratory pressure exerted upon the ballast under the ties inwardly from the two longitudinal tie edges and from the tie ends whereby the progressively more compacted ballast raised the track, and

(2) holding the track in the region of tamping locked against upward movement in the leveled position determined by the reference system,

(a) the ballast being tamped against the held track until it has reached the controlled degree of compaction and

the track being held against upward movement out of the leveled position under the tamping pressure.

4,334,480

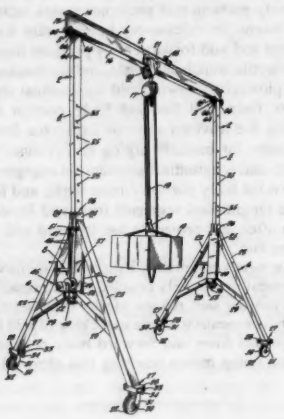
GANTRIES

Bernard E. Wallace, deceased, late of Malvern, Pa. (Kathryn Wallace and Philadelphia National Bank, executors)

Division of Ser. No. 944,733, Sep. 22, 1978, Pat. No. 4,227,464. This application Aug. 19, 1980, Ser. No. 179,671

Int. Cl.[3] B66C 5/02

U.S. Cl. 104—126 7 Claims



1. In a portable gantry having a horizontally extending load-carrying member supported by legs, the leg structure comprising a vertical post portion and diagonal members extending outwardly and downwardly on opposite sides of the post portion from points adjacent the lower part of the post portion, said diagonal members lying in a plane which is at right angles with respect to the longitudinal axis of the load carrying member, and having ground engaging roller means at the bottom thereof, and reinforcing struts connected to each diagonal member, each reinforcing strut extending from the post portion from points adjacent the bottom of the post portion to points intermediate the ends of the diagonal members, said inclined members and said struts providing ground clearance for elongated objects in vertical planes beneath said load-carrying member.

4,334,481

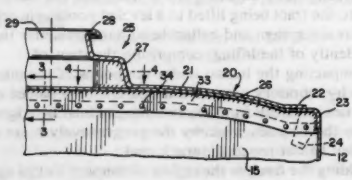
FATIGUE RESISTANT PARTITION SHEET ASSEMBLY

Phillip Przybylinski, Schererville, Ind.; Babgaunda A. Patil, Birmingham, Ala., and Gerald B. Anderson, Evergreen Park, Ill., assignors to Pullman Incorporated, Chicago, Ill.

Filed Apr. 28, 1980, Ser. No. 144,753

Int. Cl.[3] B61D 7/00

U.S. Cl. 105—248 10 Claims



1. A railway hopper car including a body having sidewalls, a hopper, and a roof sheet including flanges at its outer edges connected to the sidewalls, said roof sheet including an elongated roof step portion having an upstanding coaming defining an elongated hatch opening, and a transversely extending top framing bar connected to and beneath said roof sheet, the improvement comprising:

a partition sheet assembly extending vertically within said hopper,

means for connecting said partition sheet assembly at its upper end portion to said top framing bar,

said means for connecting including a means for fatigue resistance,

said fatigue resistance means comprising plate means extending transversely beneath said roof step portion and said hatch opening, said plate means including a top edge portion weldingly connected to said top framing bar and a bottom edge portion connected to said partition sheet assembly by mechanical fastener means whereby fatigue stress in said connecting means outwardly of said hatch opening is reduced to improve resistance to premature fatigue cracking of said partition sheet assembly.

4,334,482

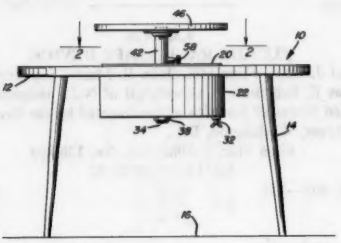
TABLE WITH ELEVATOR TYPE LAZY SUSAN

Leo J. Bolduc, 45 NW. Irving, Bend, Oreg. 97701

Filed May 20, 1980, Ser. No. 151,884

Int. Cl.[3] A47B 57/00

U.S. Cl. 108—95 3 Claims

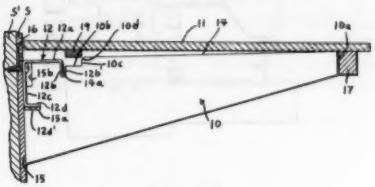


1. A table including a top and depending leg means anchored relative to the top for support of the latter in elevated position above a flooring surface, said top including a central vertical opening therein, a pair of upper and lower vertically spaced panels, means extending between and interconnecting said panels and supported from said table for rotation about a vertical axis passing centrally through said opening and free vertical shifting relative to said table along said axis between a lowered position with said upper panel at least substantially downwardly toward said top and said lower panel downwardly retracted below said opening and an upper position with said upper panel appreciably spaced above said opening and said lower panel extended upwardly into and rotatably received in said opening, said panels being of substantially the same plan shape, said opening being of substantially the same plan shape but slightly larger than said lower panel, said table including an upwardly opening housing supported from the underside of the top thereof in vertical registry with said opening, said lower panel being downwardly receivable within said housing when said upper and lower panels are in their lower positions, said housing including a bottom wall, an upstanding support mounted on said bottom wall and projecting upwardly toward said table top, said means extending between and interconnecting said panels including a tubular member telescopingly engaged with said upstanding support, the upper end of said upstanding support including a thrust bearing assembly, said tubular member including a radially outwardly retractable inwardly projecting abutment downwardly abuttingly engaged with an upper portion of said thrust bearing assembly.

4,334,483
INTERLOCKING SHELF AND BRACKET CONSTRUCTION

Harlan F. Kellogg, 1617 Sprucewood, Rockford, Ill. 61107

Filed Jul. 28, 1980, Ser. No. 173,153
Int. Cl.³ A47B 5/02
U.S. Cl. 108—152 4 Claims

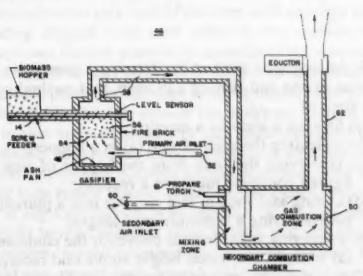


1. An interlocking shelf and shelf bracket construction comprising, at least two shelf brackets each having an upper shelf supporting surface, means for mounting the rear end of the shelf brackets on a supporting surface to extend forwardly therefrom in cantilever fashion, the shelf brackets each having a forwardly facing first abutment face extending transverse to the upper shelf supporting surface adjacent the forward end of the shelf bracket and a rearwardly facing second abutment face extending transverse to the upper shelf supporting surface at a location spaced rearwardly from the first abutment face, a shelf adapted to extend between and overlie the upper shelf support surfaces on the several shelf brackets for support thereby, the shelf having a first abutment strip extending therebelow and generally paralleling the forward edge thereof for engaging the first abutment faces on the several shelf brackets, the shelf having a second abutment strip extending therebelow and spaced from the first abutment strip a distance no greater than the minimum spacing between the first and second abutment faces on the shelf brackets, at least one of said strips being laterally resilient and attached to the shelf only at locations spaced along the shelf from the shelf brackets to allow portions of said one abutment strip intermediate the attached locations to shift relative to the other abutment strip during assembly of the shelf on the shelf brackets.

4,334,484
BIOMASS GASIFIER COMBUSTOR

Fredrick A. Payne, Versailles, and Ira J. Ross, Lexington, both of Ky., assignors to University of Kentucky Research Foundation, Lexington, Ky.

Filed Jan. 18, 1980, Ser. No. 113,339
Int. Cl.³ F23B 5/00; F23K 3/00
U.S. Cl. 110—210 13 Claims



1. An apparatus for producing a clean combustion gas in response to combustion of a biomass mixture disposed therein and for drying an object using said clean combustion gas, comprising:

screw feeder means for feeding said biomass mixture into said apparatus, said feeder means being horizontally disposed for feeding said biomass mixture into said apparatus along a horizontal direction and having an augered configuration for forcedly feeding said biomass mixture into said apparatus;

first combustion chamber means for receiving said biomass mixture from said feeder means and burning said biomass mixture therein thereby producing a first combustion gas, said feeder means extending transversely within said first combustion chamber means for levelling the biomass mixture received therein, said feeder means being horizontally disposed in a plane within said first combustion chamber means, said plane substantially corresponding to the maximum desired level of said biomass mixture in said first combustion chamber means, said feeder means sealing said first combustion chamber means from said atmosphere;

level sensing means extending into said first combustion chamber means and connected to said feeder means for sensing the level of the biomass mixture in said first combustion chamber and for terminating the feed of said screw feeder means when said biomass mixture reaches a predetermined level;

second combustion chamber means for receiving said first combustion gas and burning said first combustion gas therein thereby producing a second combustion gas;

nozzle means for forcedly directing said second combustion gas from said second combustion chamber means onto said object, said second combustion gas drying said object;

pump means communicating with said second combustion chamber means for creating a negative pressure region within said apparatus, said negative pressure region drawing said first combustion gas into said second combustion chamber means and forcedly directing said second combustion gas through said nozzle means and onto said object; said biomass mixture comprises a highly porous fuel having a low moisture content; means for producing a primary flow of air; primary air inlet port means responsive to the means for producing for permitting said primary flow of air to flow into said first combustion chamber means, the primary air flowing from said primary inlet port means through the porous fuel in said first combustion chamber means thereby burning the porous biomass mixture therein; and first gas outlet port means for permitting said first combustion gas to exit from said first combustion chamber means to said second combustion chamber means;

whereby the level sensing means stops the feed of said screw feeder means when the biomass mixture in said first combustion chamber has reached a predetermined level, an even biomass distribution being achieved in said first combustion chamber means when the biomass mixture is levelled thereby permitting an even burn of said biomass in said first combustion chamber means.

4,334,485
METHOD FOR GENERATING HEAT ENERGY BY INTERMITTENT SMOKE CHARGE COMBUSTION

Frank C. Guida, 50 Allen St., Walpole, Mass. 02081

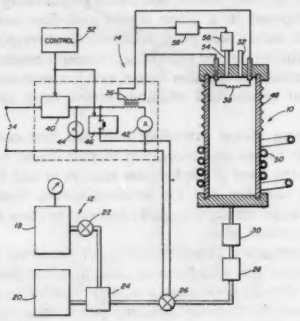
Continuation of Ser. No. 61,945, Jul. 30, 1979, abandoned. This application Apr. 20, 1981, Ser. No. 255,805
Int. Cl.³ F23D 1/00
U.S. Cl. 110—347 6 Claims

1. An intermittent process of overall low temperature operation for producing and utilizing thermal energy, said process comprising:

(a) intermittently forming a smoke charge containing a mixture of an internal phase of a dispersion of fine solid particles and an external phase of air;

(b) said solid particles being composed of slowly igniting

organic material selected from the class consisting of agricultural, fossil, vegetation, and resinous materials;
(c) said particles having an average diameter in the range of from 1 micron to 200 mesh;
(d) said smoke being of at least atmospheric pressure and having a minimum concentration of at least 25 ounces of said solid particles per 1000 cubic feet of air at atmospheric pressure;
(e) introducing said smoke charge, while maintained substantially at said atmospheric pressure, into a chamber;
(f) intermittently energizing said smoke charge, while initially under said substantially atmospheric pressure within



said chamber, with an electric current having an energy of at least 15 millijoules in order to cause exploding of said smoke charge of limited duration and at high temperature, the intermittency of said energizing and of said exploding of said smoke charge being of sufficient lengths to enable substantially complete dissipation of heat generated by said exploding into a heat exchange system;
(g) powering an appliance with thermal energy generated by said exploding and transmitted through said heat exchange system;
(h) and scavenging the residue of said energizing and exploding from said chamber.

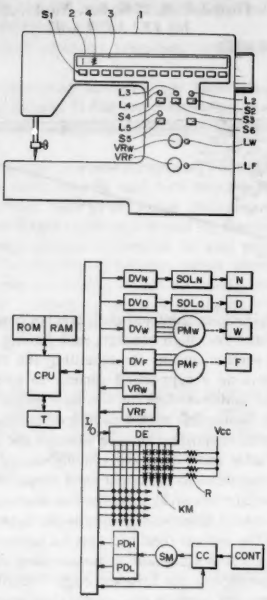
4,334,486

ELECTRONIC SEWING MACHINE

Kume Toshiaki, Tachikawa; Hideaki Takenoya, Hachioji; Toshihide Kakinuma, Tokyo; Hachiro Makabe, Fussa, and Kazuo Watanabe, Hachioji, all of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Mar. 24, 1980, Ser. No. 133,126
Claims priority, application Japan, Mar. 26, 1979, 54-35212
Int. Cl.³ D05B *3/02*
U.S. Cl. 112—158 E **8 Claims**

1. In an electronic sewing machine having stitch forming and feeding instrumentalities and a pattern panel and employing an electronic memory and an electronic circuit for controlling a needle amplitude and a fabric feed so as to form a plurality of stitching patterns, a combination comprising a pattern selecting controller which selects desired patterns in said plurality of stitching patterns; a memory controller which stores a combination of plural patterns; a function selector which selects a function of the sewing machine in accordance with the formation of selected patterns, including the operation for selecting twin-needle stitching; a function cancelling means operative for removing the selection of the function by said function selector; and a calculation processing device which, when said function cancelling means is operated, controls the respective functions of the sewing machine by way of program control signals stored in said electronic memory, and carries out the control to maintain designation of the patterns selected



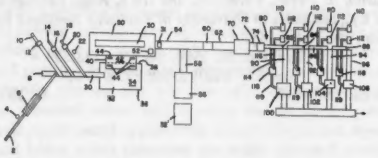
by said pattern selecting controller or designations of patterns during stitching patterns.

4,334,487

METHOD OF MANUFACTURING COMPOSITE CONTAINERS

Jay T. Elston, Urbana, Ohio, assignor to Kardon Industries, Inc., Philadelphia, Pa.

Filed Jan. 14, 1980, Ser. No. 111,618
Int. Cl.³ B21D *51/16*
U.S. Cl. 413—6 **1 Claim**



1. An assembly method for forming a composite container having in one end thereof a closure, said method comprising the steps of:
(a) forming a stick on a mandrel;
(b) collecting the stick of step (a) in a hopper;
(c) conveying the stick from the hopper of step (b), on a figured conveyor means to a recutter;
(d) cutting said stick in said recutter into a plurality of containers having a predetermined length;
(e) conveying in an elevator conveyor the containers of step (d) to a predetermined height above said recutter;
(f) conveying by gravity said containers from said predetermined height to a flarer station;
(g) flaring at least one end of said container in said flarer;
(h) providing a seamer;

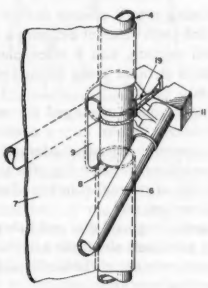
(i) providing a ring and plunger closure assembly apparatus for supplying ring and plunger closures;
(j) conveying in an elevator conveyor said containers of step (f) to a predetermined height above said seamer;
(k) providing said containers of step (j) and said closure of step (i) to said seamer; and
(l) seaming said closure to said container in said seamer.

4,334,488

FIXTURE FOR ATTACHING THE WISHBONE TO THE MAST OF A SAIL-BOARD

Christiane Jolivet, 23, rue Salvador Allende, 76610 Le Havre, France

Filed Jan. 8, 1980, Ser. No. 110,312
Int. Cl.³ B63H 9/04, 9/08
U.S. Cl. 114—39 2 Claims



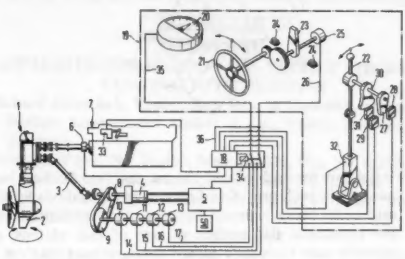
1. Fixture for attaching a wishbone element to a mast of a sheet of sail on a sail-board comprising a unitary member having a pair of holes or sockets at one end thereof for reception and retention of free ends of the wishbone element to be assembled therewith and an endless flexible strap: wherein said unitary member includes a notch with a cylindrical surface extending between and separating said pair of holes or sockets, first and second sides extending radially away from said notch, a gap extending between said first and second sides and facing away from said notch, and a hook extending from said second side with said hook being open in the direction toward said notch and away from said gap; also wherein said endless flexible strap includes two side-by-side portions with opposite ends thereof being integral with each other in first and second closed loops; and further wherein in assembly of the wishbone element on the mast said cylindrical surface of said notch is placed against a portion of the mast which is retained therein in seated relationship, the free ends of the wishbone element are disposed in said holes or sockets of said unitary member and retained therein, said endless flexible member is wrapped with both of said side-by-side portions around said mast, with said first closed loop passed inward of said second closed loop and said mast in slip knot fashion, with said first closed loop being drawn tightly beyond said first radially extending side of said unitary member, turned substantially vertically through and against said gap, turned back toward said mast at said second radially extending side of said unitary member, with said first closed loop disposed in and retained in said hook, and with said endless strap being in taut condition.

4,334,489

REVERSING MECHANISM FOR STEERABLE PROPELLERS, JET RUDDERS OR OTHER DRIVE MECHANISMS OF SHIPS

Kurt Seitzinger, Koblenz-Karthause, and Siegfried Lais, Spay, both of Fed. Rep. of Germany, assignors to Schottel-Werft Josef Becker GmbH & Co., KG, Spay, Fed. Rep. of Germany

Continuation of Ser. No. 826,055, Aug. 19, 1977, abandoned.
This application May 7, 1979, Ser. No. 36,543
Claims priority, application Fed. Rep. of Germany, Aug. 19, 1976, 2637345
Int. Cl.³ B63H 25/42
U.S. Cl. 114—144 R 11 Claims



1. A control device for controlling the direction of applied thrust from a steerable drive means rotatably supported on a watercraft for 360° movement about a vertical axis, said watercraft including drive means thereon for generating said applied thrust, said control device comprising:
drive transmitting means connected to said steerable drive means for selectively driving said steerable drive means about said vertical axis;
steering control means operatively connected to said drive transmitting means for steering the direction of applied thrust through a first range of movement of about 180° limited to within about ±90° swing from the longitudinal axis of said watercraft and with said range orientable either forward or rearward of said vertical axis; and
reversing control means movable between two areas, said reversing control means being operatively connected to said drive transmitting means only in response to location thereof in either one of said two areas location in either one of said two areas effecting, independent of said steering control means, through said drive transmitting means a one-step movement of said steerable drive means about said vertical axis completely through a second range of movement of 180° at a speed higher than providable by said steering control means.

4,334,490

BIKE FOR TRAVELING OVER WATER

Naeem B. Gabriel, 20 Smith St., Jersey City, N.J. 07306

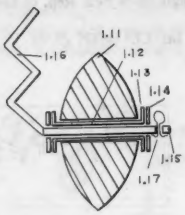
Filed May 23, 1979, Ser. No. 41,704
Int. Cl.³ B60F 3/00
U.S. Cl. 114—270 4 Claims

1. A bike for traveling over land and water comprising:
a front wheel;
a rear wheel used for powering the bike and having spokes;
a frame for holding the front wheel and a frame for holding the rear wheel;
four bouyancy means each having the shape of a convex lens;
four support means each having an axle for supporting one of said buoyancy means and a W-shaped extension for fixing the buoyancy means to the bike;
said W-shaped extension fixing said buoyancy means to said bike such that one of said buoyancy means is located on each side of said frame holding the front wheel, and one of

said buoyancy means is located on each side of said frame for holding the rear wheel;

cylindroids for powering the bike over water, each cylindroid being attached to a spoke of said rear powering wheel,

two platens, each having a flat horizontal surface and each having a downwardly extending curved surface, said curved surface extending from the forward edge of said flat surface;



two flat bars for each of said platens, said two flat bars being used to fix each one of said platens to a pedal of said bike, said pedal being clamped between said two flat bars and the horizontal flat surface of one of said platens; and

wherein said buoyancy means supports said bike on the water surface and said cylindroids, and platens are used to propel said bike over the water surface.

4,334,491

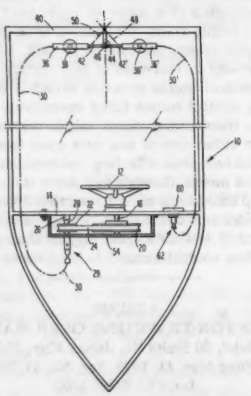
GEARLESS POSITION INDICATOR

Walter Kulischenko, East Brunswick, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Nov. 10, 1980, Ser. No. 205,483

Int. Cl.³ B63H *25/24;* B60Q *1/42*

U.S. Cl. 116—31 **7 Claims**



1. In combination with a marine vessel steering system wherein manually-operable steering control means effects rotation of rotatable means for controlling angular disposition of a steering member through pivot means, said steering member connected through first screw means to said steering control means, said first screw means converting rotary motion from said rotatable means to linear motion, said linear motion effecting angular disposition of said steering member which controls direction of travel of said marine vessel, the improvement comprising

position indicating means connected to said steering member through a second screw member oppositely arranged and similar to said first screw means for indicating said angular disposition of said steering member,

said second screw means connected to said pivot means and responsive to movement of said first screw means for indicating said angular disposition of said steering member on said indicating means.

4,334,492

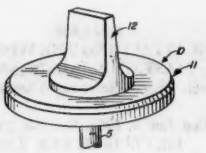
MANIPULATING ROTARY CONTROL DEVICE

Michael R. Klingler, 1238 S. Courtland, Park Ridge, Ill. 60068

Continuation-in-part of Ser. No. 11,202, Feb. 12, 1979, Pat. No. 4,213,416. This application Jun. 11, 1980, Ser. No. 158,491

Int. Cl.³ G09F *11/04, 11/02*

U.S. Cl. 116—309 **17 Claims**



5. A manipulating rotary control device comprising:

a one-piece dial-knob element defining a dial portion having a peripheral portion, and a manipulating knob portion, said dial-knob element being formed of a thermal insulation material;

a hub defining a socket arranged for selective removable coaxial mounting thereof onto a control shaft end, and a peripheral connecting portion adapted to be connected to said dial peripheral portion for effecting rotation of said dial as a result of manual rotation of said knob about the axis of said socket; and

means interconnecting said dial and hub peripheral portions for rotating said shaft about the axis thereof as an incident of said manual rotation of the knob, said dial-knob element being formed of synthetic resin.

4,334,493

ROTARY DRUM TYPE APPARATUS FOR APPLYING A COATING TO TABLETS

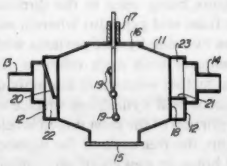
Mikio Okawara, Shizuoka, Japan, assignor to Ohkawara Mfg. Co., Ltd., Shizuoka, Japan

Filed Feb. 5, 1981, Ser. No. 231,908

Claims priority, application Japan, Feb. 6, 1980, 55/13327

Int. Cl.³ A23G *3/20*

U.S. Cl. 118—19 **3 Claims**



1. A rotary drum type apparatus for applying a coating to tablets, comprising:

a drum having the tablets placed therein to apply a coating thereto;

a support frame for supporting said drum for rotation;

an air inlet tube and an air outlet tube connected to said support frame; and

a drive mounted on a rear surface of said drum; wherein the improvement resides in that said air inlet tube and said air

outlet tube are disposed in positions slightly displaced from the center line of the support frame extending perpendicular to the center axis of the drum toward the rear surface of the drum whereby the apparatus including the drum, the support frame and the drive can be balanced.

4,334,494

DUSTING APPARATUS

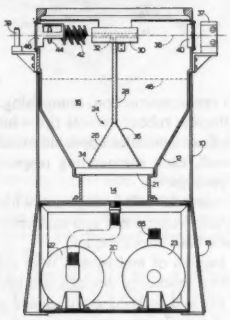
Gary Kane, Stoke-On-Trent, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Jul. 17, 1980, Ser. No. 169,645

Claims priority, application United Kingdom, Jul. 21, 1979, 7925517

Int. Cl.³ B05C *11/06, 19/02*

U.S. Cl. 118—63 **12 Claims**



1. Dusting apparatus comprising a casing defining a chamber adapted to contain a quantity of a dusting powder, means whereby an air flow can be passed through said chamber to maintain a fluidized bed of the dusting powder within the chamber, and a conveying nozzle arranged to cause powder-laden air to pass, in use of the apparatus, from the bed to a body to be dusted outside the bed, the nozzle comprising an entry portion positioned within the bed to receive a portion of the air flow, a discharge portion positioned outside the bed adjacent a body to be dusted, and a convergent portion between the entry and discharge portions and arranged to cause said portion of the air flow to propel powder to the discharge portion.

4,334,495

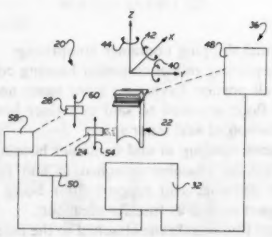
METHOD AND APPARATUS FOR USE IN MAKING AN OBJECT

Thomas Derkacs, Mayfield; Charles W. Fetheroff, Willowick; Istvan M. Matay, North Royalton, and Istvan J. Toth, Richmond Heights, all of Ohio, assignors to TRW Inc., Cleveland, Ohio

Filed Jul. 11, 1978, Ser. No. 923,693

Int. Cl.² B05B *3/14, 12/00*

U.S. Cl. 118—669 **177 Claims**



1. An apparatus for applying a covering of material to at least a portion of a workpiece, said apparatus comprising spray means for directing a flow of material toward the workpiece, first means for effecting relative movement between said spray means and the workpiece along each of three transversely extending axes, second means for effecting rotational movement between said spray means and the workpiece about each of three transversely extending axes, sensor means for detecting the thickness of a covering of material applied to the workpiece by said spray means, and control means connected with said sensor means and said spray means for comparing the detected thickness of the covering of material with a desired thickness and for regulating the operation of said spray means as a function of the difference between the detected thickness of the covering and the desired thickness of the covering.

4,334,496

APPARATUS FOR RIGIDIFYING TEXTILE PIECES BY COATING WITH PLASTICS

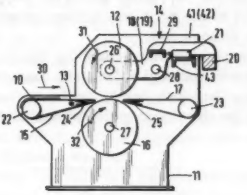
Richard Juraschek, Vlotho, Fed. Rep. of Germany, assignor to Herbert Kannegiesser GmbH & Co., Vlotho, Fed. Rep. of Germany

Division of Ser. No. 35,662, May 3, 1979, Pat. No. 4,259,380. This application Apr. 2, 1980, Ser. No. 136,609

Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819547

Int. Cl.³ B05C *1/02*

U.S. Cl. 118—679 **7 Claims**



1. An apparatus for rigidifying outerwear pieces of textile material of different configurations for the production of clothing by coating them with plastic, wherein the textile pieces are serially fed in one behind the other on a transport conveyor, and the plastic is transferred onto the pieces by a compressing cylinder which bears against the textile pieces under pressure during the coating, characterized by: means for continuously sensing the width of each incoming textile piece in a direction transverse to the direction of delivery of the conveyor, and means for automatically and continuously adjusting the force with which the compressing cylinder (12) bears against said each textile piece (10) in direct proportion to the sensed width whereby the greater the sensed width the greater the cylinder force, and vice versa, to thereby achieve a uniform coating pressure on each piece regardless of its shape or orientation.

4,334,497

MAGNETIC BRUSH DEVELOPING APPARATUS

Tateki Oka; Kenichi Wada, and Kenji Tabuchi, all of Sakai, Japan, assignors to Minolta Camera Kabushiki Kaisha, Japan

Filed Sep. 26, 1980, Ser. No. 191,121

Claims priority, application Japan, Oct. 11, 1979, 54/131368

Int. Cl.³ G03G *15/09*

U.S. Cl. 118—698 **7 Claims**

1. A magnetic brush developing apparatus for developing latent electrostatic images with a particulate magnetic developer which comprises

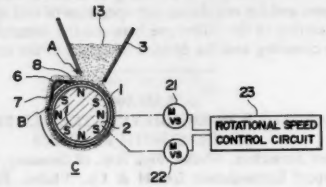
(a) a rotatable non-magnetic developing sleeve,

(b) first drive means connected to said sleeve for rotating said developing sleeve in a specified direction,

(c) a magnetic roller rotatably disposed within the developing sleeve,

(d) second drive means connected to said magnetic roller for rotating the magnetic roller in the same direction as the developing sleeve to transport said magnetic developer along the peripheral surface of the developing sleeve in a direction opposite to the direction of rotation of the developing sleeve,

(e) a plate member having one end in pressing contact with the peripheral surface of said sleeve and a surface thereof forming a developer guide surface, which developer guide surface is at an acute angle with respect to a tangent to



said sleeve, said tangent extending in the direction of rotation of said sleeve, for scraping developer particles moving in the direction of rotation of said sleeve, from said sleeve,

(f) a developer supplying means for supplying developer particles to the peripheral surface of said sleeve to form bristles thereon and

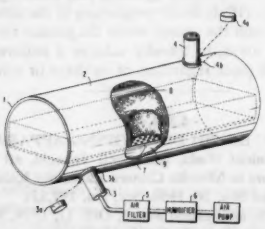
(g) a control means for controlling the rotational speeds of said sleeve and said roller with respect to each other, whereby the bristle height can be controlled while maintaining the developer speed substantially constant.

4,334,498

ASSEMBLAGE FOR REARING NEMATODES

Robyn A. Bedding, Taroona, Australia, assignor to Commonwealth Scientific and Industrial Research, Campbell, Australia

Continuation of Ser. No. 57,151, Jul. 12, 1979, abandoned, which is a continuation-in-part of Ser. No. 909,404, Feb. 21, 1978, which is a continuation of Ser. No. 715,590, Aug. 18, 1976, abandoned. This application Apr. 6, 1981, Ser. No. 251,435
Claims priority, application Australia, Aug. 26, 1975, PC2930
Int. Cl.³ A01K *67/00*
U.S. Cl. 119—1 **6 Claims**



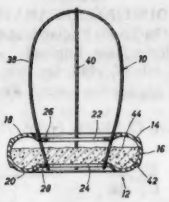
1. A method for rearing nematodes comprising introducing a growth medium into a sealable container having a suitable support medium therein, sterilizing the contents of said container, inoculating said growth medium with a symbiotic bacteria for said nematodes, inoculating said growth medium with a nematode culture and incubating said nematode culture in said container.

4,334,499

ARTIFICIAL REEF CONSTRUCTION

Allen J. Baass, Rt. 3, Box 60-B, Victoria, Tex. 77901

Filed Nov. 19, 1980, Ser. No. 208,144
Int. Cl.³ A01K *61/00*
U.S. Cl. 119—3 **11 Claims**



1. An artificial reef construction, comprising:

a discarded inflatable rubber vehicle tire which, when lying on its side, defines a circular upper side wall and a circular lower side wall, each surrounding respective upper and lower rim openings;

a quantity of concrete being disposed within said rubber vehicle tire, said vehicle tire and said concrete cooperating to define a base structure; and

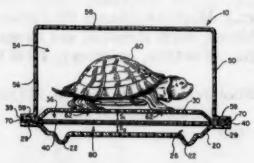
a plurality of lengths of multistrand wire rope having end portions thereof extending through said upper side wall of said vehicle tire and embedded within and retained by said concrete, said lengths of wire rope protruding upwardly from said base structure forming upper portions and cooperating with said base structure to define a centrally oriented protective habitat for marine life.

4,334,500

SHIPPING CONTAINER FOR LIVE ANIMALS

Henry H. Ziller, Rte. 2, Box G56, Hammond, La. 70404

Filed Sep. 6, 1979, Ser. No. 72,909
Int. Cl.³ A01K *1/00*
U.S. Cl. 119—15 **12 Claims**



12. An animal shipping container comprising:

a. a self-supporting animal container housing comprising an outer wall portion having an inner space and an animal support floor attached to said container housing at the lower portion of said inner space;

b. an entrance opening in said container housing wall;

c. a gas transfer chamber attached to and covering said entrance opening, said support floor being attached at least in part to said as transfer chamber;

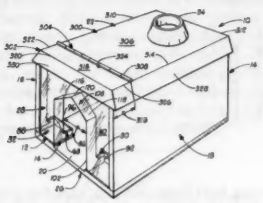
d. a polymer film membrane attached to the inner portion of said gas transfer chamber, said polymer film membrane preventing the travel of microorganisms across said membrane to or from said inner space.

4,334,501

ANIMAL SHELTER AND FEED DISPENSER

Diana G. McDaniel, and Bruce M. McDaniel, both of 427 NW. 20th St., Oklahoma City, Okla. 73103

Filed Jul. 21, 1980, Ser. No. 170,823
Int. Cl.[3] A01K 1/02
U.S. Cl. 119—16 50 Claims



1. An improved animal shelter comprising:

a floor;

a first side wall having a first side, a second side, an upper end, a lower end, a first end, and a second end, the first side wall being connected to the floor via the lower end thereof such that the first side wall is disposed substantially perpendicular to the plane of the floor;

a second side wall having a first side, a second side, an upper end, a lower end, a first end and a second end, the second side wall being connected to the floor via the lower end thereof such that the second side wall is disposed substantially perpendicular to the plane of the floor in a parallel, spatial relationship with the first side wall;

a rear wall having a first side, a second side, an upper end, a lower end, a first end and a second end, the rear wall being disposed between the first and second side walls and interconnecting the second ends of the first and second side walls;

a feed dispenser assembly having an opening extending therethrough, the feed dispenser assembly having an upper end, a lower end, a first end and a second end, the feed dispenser assembly further characterized as having a cavity formed in at least a portion thereof, the cavity extending through the feed dispenser assembly from the upper end to the lower end, the feed dispenser assembly being disposed between the first and second side walls and forming the front wall of the shelter; and

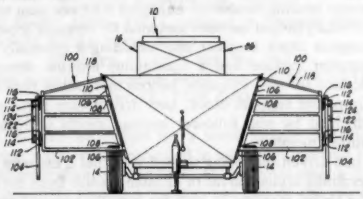
a roof positionable upon and supported by the upper end of each of the first side walls, the second side wall, and the rear wall.

4,334,502

LIVESTOCK FEEDER APPARATUS

Richard D. Cox, P.O. Box 387, Carrollton, Mo. 64633

Filed Apr. 4, 1977, Ser. No. 784,027
Int. Cl.[3] A01K 5/00
U.S. Cl. 119—53 1 Claim



1. In a feeder apparatus for livestock which includes an enclosure for containing feed, at least one feeding trough positioned adjacent said enclosure and at least one slidable side door disposed adjacent at outside surface of said enclosure and over an opening of said enclosure for unloading feed from said enclosure to said trough, the improvement comprising:

said enclosure including a pair of bars attached thereto adjacent the outwardly facing side of said slidable side door, said bars being positioned parallel to the direction of slide of said door and in close proximity to each other so that an elongated slot is formed between said bars;

said door including two vertically spaced apart, outwardly projecting threaded posts attached to said outwardly facing side thereof and positioned to extend through said slot;

two wing nuts, one of said wing nuts threadedly connected to one of said threaded posts and the other of said wing nuts connected to the other of said threaded posts whereby said wing nuts can be tightened on said posts against said bars thereby locking said door in a selected position and maintaining said door in a horizontal position to prevent said door from jamming; and

a pen, including:

a pair of vertically positioned, outwardly extending side panels removably attached to said enclosure, said side panels positioned one on each side of said feed trough;

a vertical end panel attached to said side panels, said end panel including a plurality of spaced apart vertical bars forming openings therein for admitting livestock therethrough and a horizontal bar positioned across said openings for limiting the height of said openings and said end panel being hinged at its ends to the ends of said side panels whereby upon removal from said enclosure, said side panels can be folded inwardly to positions adjacent said end panel, and further said side and end panels being of a size whereby upon being removed from said enclosure and folded, they can be positioned within said feed trough for transport with said feeder when said feeder is moved;

means for selectively adjusting the height of said horizontal bar attached to said end panel and to said bar; and

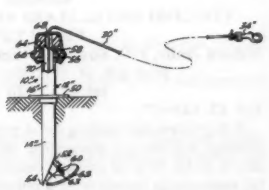
two support members for stabilizing said pen during both stationary and non-stationary use, said members each having one end thereof removably attached to a different respective one of two spaced apart points of said enclosure and each having the other end thereof removably attached to a single central point of said vertical end panel.

4,334,503

ANIMAL CONTROL DEVICE

Sam H. Carey, Jr., P.O. Box 14031, Orlando, Fla. 32807

Filed May 19, 1980, Ser. No. 151,146
Int. Cl.[3] A01K 3/00
U.S. Cl. 119—121 4 Claims



1. An animal control device for staking out a dog comprising a main upright tubular post having a lower portion to be buried underground and an upper portion to extend a predetermined distance above ground level, flange means surrounding and extending outwardly from said post intermediate said lower and upper portions and including a lower face to engage the ground surface, an enlarged top end on said upper portion, said tubular upright post including a beveled lower end portion to

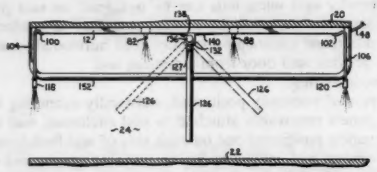
define a pointed lower tip end, an enlarged member comprising a plate companionately shaped relative to a flat face defined by said bevel on an enlarged scale and being fixed thereto, a leash having a first end secured centrally to an inner face of said plate and extending upwardly through said tubular post and emerging from said top end of said upper portion and extending outwardly therefrom and having its opposite end adapted to engage a restraining device worn by a dog.

4,334,504

ANIMAL SPRAYING APPARATUS

Lloyd J. Matthews, Rte. 2, Warrensburg, Mo. 64093

Filed Jun. 15, 1981, Ser. No. 273,927
Int. Cl.³ A01K *13/00, 29/00*
U.S. Cl. 119—159 **10 Claims**



1. Animal spray apparatus for installation on one side of an animal passageway, said apparatus comprising:

a frame adapted to be mounted on said one side of the passageway;

spaced apart first and second spray means on said frame each normally deactivated and each located and oriented to spray the side portion of an animal passing thereby in the passageway;

a source of spray fluid communicating with said first and second spray means to apply the spray fluid thereto; and

animal operated actuator means in the passageway for controlling said first and second spray means, said actuator means activating said first spray means and maintaining said second spray means in the deactivated condition when an animal passes through the passageway in a first direction and said actuator means activating said second spray means and maintaining said first spray means in the deactivated condition when an animal passes through the passageway in a second direction opposite said first direction,

whereby one side portion of an animal is sprayed by said first spray means when the animal passes through the passageway in said first direction and the other side portion of the animal is sprayed by said second spray means when the animal passes through the passageway in said second direction.

4,334,505

COOLING METAL SLABS AND OTHER METAL PRODUCTS

Richard Jablin, P.O. Box 514, Winchester, Va. 22601

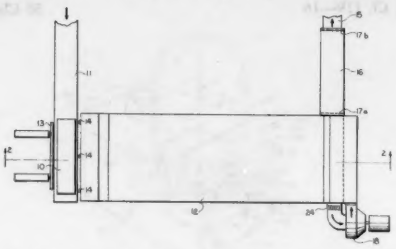
Filed Jul. 14, 1977, Ser. No. 815,744
Int. Cl.³ F22B *1/02*
U.S. Cl. 122—27 **10 Claims**

1. A process for cooling metal products that are hot from a shaping process and converting the heat from said products into a useful form of energy comprising:

(a) sequentially transporting a plurality of said metal products through a cooling chamber in substantially a single direction;

(b) circulating a cooling gas between said metal products and heat transfer surfaces that extend along substantially the entire length of said cooling chamber in countercurrent flow with said metal products and recycling said cooling gas in a concurrent direction in contact with the side of said heat-transfer surfaces opposite the side facing said metal products thereby transferring heat from said metal products to said cooling gas and from said cooling gas to said heat transfer surfaces;

(c) transferring heat from said metal products to said heat transfer surfaces directly by radiation; and



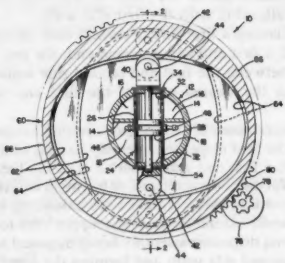
(d) transferring heat from said heat transfer surfaces into water to thereby convert said water into steam.

4,334,506

RECIPROCATING ROTARY ENGINE

Albert F. Albert, 422-101st Southeast, Bellevue, Wash. 98004

Continuation of Ser. No. 914,927, Jun. 12, 1978, abandoned, which is a continuation of Ser. No. 632,485, Nov. 17, 1975, abandoned, which is a continuation of Ser. No. 494,633, Aug. 5, 1975, abandoned. This application Sep. 11, 1979, Ser. No. 74,338
Int. Cl.³ F02B *75/22*
U.S. Cl. 123—55 AA **41 Claims**



1. A reciprocating, rotary, combustion engine, comprising:

(a) a hollow, non-rotatable support block member of predetermined length and adapted to be supported in an operative position,

(b) at least one cylinder member support in said block member such that the ends of said cylinder open to the outside of said block member and whereby within said block member there is space externally of the cylinder, said cylinder including opposed pistons with piston rods extending out of the opposed ends of said cylinder and said piston rods being provided at their outer ends with follower bearing means for engaging a driven cam surface,

(c) a rotary output member mounted for rotation around said support block member and including a generally round exterior surface and a continuous interior driven cam surface for said cylinder, pistons and piston rods spaced from said support block, said driven cam surface being engaged by said follower bearing means to rotate said output member,

(d) said driven cam being shaped such that it includes predetermined arcuate areas of constant radius from the axis of the rotary member at least for radially opposed top dead center positions for said pistons in order to allow for predetermined periods of time and degrees of rotation at which the chamber between the pistons is at constant

volume, said cam also providing at least radially opposed bottom dead center positions, and said cam further being so shaped that every radius therein has an equal and opposite counterpart radius,

(e) said cam also being shaped after the top dead center constant volume areas to provide radially opposed rapid expansion areas of a predetermined number of degrees of rotation of the rotary output member in which a first portion of each of said rapid expansion areas moves the piston away from top dead center at an accelerating velocity and a second portion moves the pistons away at a decelerating velocity toward bottom dead center, and

(f) said cylinder being provided with means for admitting fuel thereto, means for timed ignition of the same and further provided with air intake and exhaust gas manifolds and means for selectively opening and closing said cylinder to said intake and exhaust manifolds.

4,334,507

PISTON FOR AN INTERNAL COMBUSTION ENGINE AND METHOD FOR PRODUCING SAME

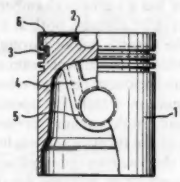
Hans J. Köhnert, Esslingen; Walter Graf, Stuttgart; Ladislaus Jakl-Banka, Korb, and Manfred Röhrle, Ostfildern, all of Fed. Rep. of Germany, assignors to Mahle GmbH, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 829,677, Sep. 1, 1977, abandoned. This application May 29, 1980, Ser. No. 154,133

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1977, 2639294

Int. Cl.³ F02F *3/06*

U.S. Cl. 123—193 P **11 Claims**



1. A piston for an internal combustion engine, comprising: a piston body formed of a material selected from the group consisting of aluminum and aluminum base alloys; and at least one insert formed of a material different to that of said piston body, said at least one insert having a portion connected to said piston body, said portion being formed of a porous material with a mean pore diameter of between 3 and 200 μm and a thickness of at least 20 times said mean pore diameter, said portion having its pores in the form of open pores, said at least one insert being connected to said piston body by the material of said piston body occupying the open pores of said porous material throughout said thickness.

4,334,508

INTERNAL COMBUSTION ENGINE HAVING AN ENGINE DRIVEN OIL PUMP

Hiroshi Sasaki, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

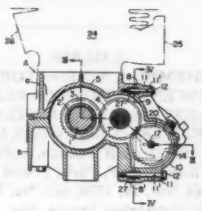
Filed Sep. 11, 1979, Ser. No. 74,510

Claims priority, application Japan, Sep. 12, 1978, 53-112637

Int. Cl.³ F02F *7/00*

U.S. Cl. 123—195 A **10 Claims**

1. A two stroke engine for a snow mobile comprising a crankcase, a crankshaft provided in said crankcase and having one end extending outwardly from the crankcase, a driving pulley assembly mounted on said one end of the crankshaft adapted for transmitting driving force to a driven member of the snow mobile, a power take-off gear housing section provided at an end of the crankcase adjacent to said pulley assembly, said gear housing section having a first opening at a position sidewardly apart from said crankshaft, casing means removably mounted through bolt means extending substantially perpendicularly to said crankcase on said gear housing section at said first opening and containing a second opening aligned with said first opening and oil pump means, said bolt means being accessible when said driving pulley assembly is mounted on said one end of the crankshaft so as to permit removal and installation of said casing means while said driving pulley



assembly is mounted on said one end of the crankshaft, and gear means extending between said gear housing section and said casing means and having a driving gear extending into said casing means through said second opening for transmitting a driving power from said crankshaft to said oil pump means, said oil pump means including a driven gear in meshing engagement with said driving gear and extending through said first opening into said gear housing section.

4,334,509

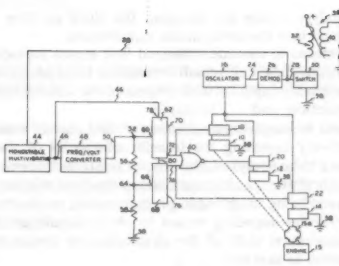
ELECTRONIC IGNITION WITH STEP ADVANCE

Donald R. Nash, Berkey, Ohio, assignor to Eltra Corporation, Toledo, Ohio

Filed Apr. 4, 1980, Ser. No. 137,158

Int. Cl.³ F02P *5/04*

U.S. Cl. 123—414 **8 Claims**



1. An ignition system for an internal combustion engine, comprising:

a plurality of sensor means responsive to a predetermined rotational position of said engine;

oscillator means;

first switch means interposed between said oscillator means and each of said plurality of sensor means for selecting one said sensor means;

said oscillator means being responsive to said selected one sensor means;

demodulator means responsive to said oscillator means for producing a switching signal;

second switching means responsive to said switching signal for causing an ignition coil to produce an ignition pulse;

converter means for producing a voltage proportional to a frequency produced by said oscillator means in response to said selected sensor means, said frequency being proportional to rotational speed of said engine;

voltage divider means electrically connected to said converter means;

at least one logic means having an input and complimentary outputs, said input having a threshold, said complimentary outputs being responsive to a voltage above and below said threshold;

said voltage divider means being connected to said input and providing said voltage to said input; and

logic gate means for selecting and controlling one of said first switch means in response to said outputs of said logic means.

4,334,510

ELECTROCHEMICAL SENSOR FOR MEASURING RELATIVE CONCENTRATIONS OF REACTIVE SPECIES IN A FLUID MIXTURE AND A SYSTEM COMPRISING SAID SENSOR, ESPECIALLY FOR REGULATION

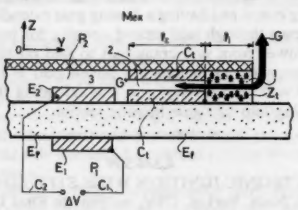
Michel Croset, and Gonzalo Velasco, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 19, 1979, Ser. No. 95,308

Claims priority, application France, Nov. 21, 1978, 78 32764

Int. Cl.³ F02M *7/00*; G01N *27/46*

U.S. Cl. 123—440 **13 Claims**



1. An electrochemical sensor for measuring relative concentrations of reactive species contained in a fluid mixture, comprising:

first catalyst means for bringing the fluid mixture to be analyzed into thermodynamic equilibrium;

second means in cascade with said first means including an electrochemical cell which is sensitive to an excess of one of the reactive species with respect to the stoichiometry of the reaction; and

additional means located upstream of said second means for selectively impeding the transfer of species of the fluid mixture to be analyzed, the ratio of relative concentrations of the reactive species contained in the fluid mixture to be analyzed being modified in predetermined proportions by said transfer-impeding means to obtain a substantial and predetermined shift of the stoichiometric concentration measured at said cell.

4,334,511

FUEL INJECTION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Minoru Atsumi, Kawagoe; Toshio Nomura, Niiza, and Jiro Kawahara, Tokyo, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

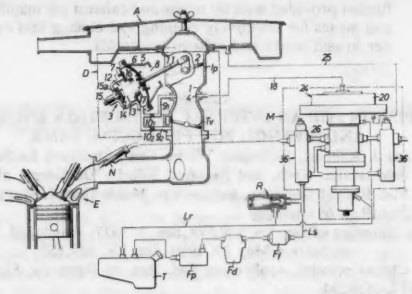
Filed Mar. 20, 1979, Ser. No. 22,272

Claims priority, application Japan, Mar. 23, 1978, 53-33363

Int. Cl.³ F02M *39/00, 1/02*

U.S. Cl. 123—454 **12 Claims**

1. An improved fuel injection system for an internal combustion engine comprising an intake passage, an air valve, said air valve being in the intake passage normally biased to a closed position, a throttle valve disposed in the intake passage downstream of the air valve, an intake-air flow detecting device for detecting a flow rate of engine intake air as a value of vacuum pressure, a fuel injection nozzle opening to the intake passage at a location downstream of the throttle valve adjacent the engine, a fuel feed pump in a fuel line interconnecting a fuel tank and the fuel injection nozzle, a fuel metering device in the fuel line for metering the fuel delivered from the fuel pump in response to vacuum pressure transmitted from the intake-air flow detecting device to supply a metered amount of fuel to the fuel injection nozzle, the intake-air flow detecting device having a vacuum-operated actuator operable to move the air valve into an open position and restoring spring means arranged to normally bias the air valve in a closing direction, the improvement wherein: a vacuum detecting port communicating with the fuel metering device is open to the intake passage at a location between the air valve and the throttle valve, for controlling the operation of the fuel metering device in response to vacuum pressure in the intake passage; and the vacuum-operated actuator has a vacuum chamber which is in communication with the intake passage, both at a location between the air valve and the throttle valve through a first vacuum passage and at a location on the downstream side of the throttle valve through a second vacuum passage whereby, in low load operation of the engine in which the opening degree of the throttle valve is small, high vacuum pressure in the intake passage downstream of the throttle valve is introduced into the vacuum chamber of the vacuum-operated actuator by way of the second vacuum passage to increase the opening degree of the air valve to control vacuum pressure in the intake passage between the air valve and the throttle valve in a decreasing sense.



4,334,512

CONNECTING CONDUIT ARRANGEMENT

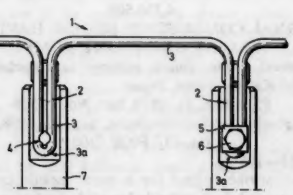
Siegfried Biernath, Bonn, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Cologne, Fed. Rep. of Germany

Filed Oct. 12, 1979, Ser. No. 84,422

Claims priority, application Fed. Rep. of Germany, Oct. 12, 1978, 2844489

Int. Cl.³ F02B *77/00*

U.S. Cl. 123—469 **6 Claims**



1. A connecting conduit arrangement for connecting a drain conduit with hollow attachment screws to the drains of fuel injection nozzle holders of an internal combustion engine, the arrangement comprising:

a tube comprising a substantially straight section extending

between two fuel injection nozzle holders, the straight section having U-shaped sections each formed of two opposed legs joined by a bight and extending at approximately 90° to the straight section, the U-shaped sections connecting the straight section to adjacent straight sections and extending to the drains of the nozzle holders with the bight portions of the U-shaped sections positioned adjacent the drains, the opposed legs of the U-shaped sections having opposed cut-outs through the walls thereof in alignment with the drains to establish communication therewith and through which is received one of the hollow attachment screws;

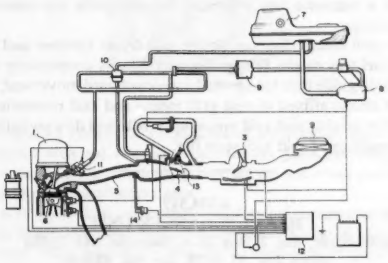
a connecting part fitting over the opposed legs, the connecting part having having a hole therethrough aligned with the opposed cut-outs and a flat surface against which the head of the hollow attachment screw seals, whereby communication between the drain and conduit is established through the hollow attachment screw.

4,334,513

ELECTRONIC FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Makoto Nakajima, Oiso, and Masaru Naramura, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jun. 27, 1980, Ser. No. 163,505
Claims priority, application Japan, Jun. 29, 1979, 54-82229
Int. Cl.³ F02B *3/00*
U.S. Cl. 123—494 **7 Claims**



1. In an electronic fuel injection system for an internal combustion engine, the system having means for sensing the engine speed, means for measuring the rate of air flow entering the engine, means for calculating optimum fuel injection quantity in accordance with the sensed engine speed and the measured air flow rate and producing a command signal based on the calculation and fuel injector means for injecting a regulated quantity of fuel into the engine in response to the command signal, the improvement comprising;

vacuum sensing means for sensing the absolute value of the intake manifold pressure and producing a first actuating signal when the sensed absolute value of the intake manifold pressure is below a predetermined value,

throttle position sensing means for sensing the opening degree of the throttle valve and producing a second actuating signal when the sensed opening degree is beyond a predetermined degree, and

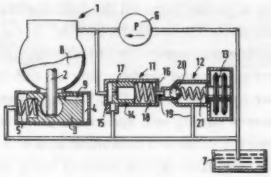
means for achieving fuel enrichment by modifying the command signal of said calculating means in response to said first and said second actuating signals when either or both of said first and said second actuating signals are present.

4,334,514

FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINE

Karl Konrath, Ludwigsburg, and Gerhard Brink, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 30, 1980, Ser. No. 173,514
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1979, 2931938
Int. Cl.³ F02M *59/32*
U.S. Cl. 123—502 **6 Claims**



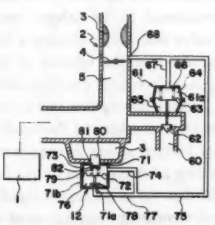
1. A fuel injection pump for internal combustion engines having a piston adjustable counter to a restoring force by means of fluid from a supply pump in proportion to rpm for adjusting injection onset and having rpm-proportional control of the fluid pressure via a pressure control valve, a control piston displaceable between a pressure chamber and a restoring chamber counter to a restoring force and arranged to determine a spill cross section, and a pressure valve, said pressure valve arranged to influence the fluid pressure in accordance with operational characteristics of the engine and further having at least one valve spring, characterized in that said pressure valve includes a pressure actuated maintenance valve having an opening pressure, said opening pressure arranged to be established by means of varying the initial tension of said valve spring, which is supported on a stop means, said stop means being displaceable in accordance with the air pressure via a barometric box.

4,334,515

TEMPERATURE RESPONSIVE, PRESSURE OPERATED DIAPHRAGM VALVE ASSEMBLY FOR AUTOMOBILE ENGINE

Kazutoshi Otsuka, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Jan. 24, 1980, Ser. No. 116,607
Claims priority, application Japan, Jan. 29, 1979, 54-10386[U]
Int. Cl.³ F02M *25/06*
U.S. Cl. 123—568 **7 Claims**



1. A temperature responsive, pressure operated diaphragm valve assembly for use in association with an automobile internal combustion engine having an intake duct leading to at least one combustion chamber, said intake duct having a throttle valve disposed therein for pivotal movement between a substantially closed position and a full open position, and an exhaust manifold leading from the combustion chamber towards

the atmosphere, said temperature responsive, pressure operated diaphragm valve assembly comprising, in combination:

a first valve actuator housing;

a first diaphragm member housed within the first valve actuator housing and dividing the interior of the first valve actuator housing into a first chamber, and a second chamber communicated to the atmosphere;

a first passage means between said first chamber and a portion of the intake duct;

a first biasing spring housed within the first chamber and exerting a biasing force on the first diaphragm member to displace the latter in one direction;

a first valving element carried by the first diaphragm member and positioned on one side of the first diaphragm member opposite to the first biasing spring, second passage means having one end communicated to the intake duct and the other end communicated to a source of fluid medium, said first valving element being movable by said first diaphragm member for selectively opening and closing said second passage means when and so long as the first diaphragm member is displaced in said one direction and opening said second passage when the first diaphragm member is displaced in the other direction opposite to said one direction; and

means operable in response to change in an engine reference temperature for adjusting the biasing force of the first biasing spring according to a change in the engine reference temperature and including a first temperature sensing element having a parameter, the magnitude of said parameter being variable as a function of the engine reference temperature, and a first push rod supported for axial movement between projected and retracted positions and having one end connected to the first biasing spring and the other end operatively associated with the first temperature sensing element for, as the temperature sensed by the first temperature sensor increases, moving said first push rod from the retracted position towards the projected position adjusting the first biasing spring to change the biasing force thereof.

3. A valve assembly as claimed in claim 1, wherein said one end of the second passage is communicated to the intake duct by way of the first passage and said fluid source is constituted by the atmosphere, and further comprising an exhaust gas recirculating system including a recirculating passage having one end communicated to a portion of the intake duct and the other end communicated to the exhaust passage, and a diaphragm control valve assembly including a further valve actuator housing and dividing the interior of the further valve actuator housing into a working chamber and an atmospheric chamber a third passage having one end communicated to the working chamber and the other end fluid connected to the first passage, a further biasing spring housed within the working chamber and exerting a biasing force on the further diaphragm member, and a further valving element rigidly carried by the further diaphragm member for displacement together with the further diaphragm member, said further valving element being adapted to selectively open and close the recirculating passage, said further valving element closing the recirculating passage when the further diaphragm member is biased in one direction by the further biasing spring, but opening the recirculating passage when the negative pressure sufficient to overcome the biasing force of the further biasing spring is introduced into the working chamber.

4,334,516

COLLAPSIBLE, PORTABLE BARBECUE GRILL

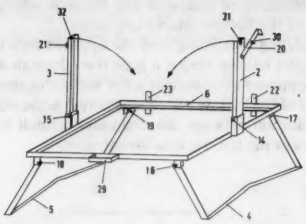
Ellen Dittmer, Urspringerstr. 2, 8021 Strasslach, and Lothar Pietryga, Krüner Str. 43, 8000 München 70, both of Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 93,814

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1978, 2849626

Int. Cl.³ F24C *1/16;* A47J *37/00*

U.S. Cl. 126—9 R **11 Claims**



1. A collapsible, portable barbecue grill comprising:

(a) a frame member having a pair of upwardly extending guide rails hingedly affixed at opposite ends thereof, and an inwardly extending peripheral lip, said guide rails being provided with receiving means at the distal free ends thereof;

(b) a pair of generally U-shaped downwardly extending legs hingably affixed to said frame member;

(c) fuel tray means removably receivable by said frame member and being supported on said inwardly extending frame lip for supporting fuel thereon;

(e) a rotisserie bar journaled in said guide rail receiving means;

(f) grill means disposed above said frame member and said fuel tray means, said grill means slidably cooperating with said guide rails for upward and downward movement; and

(g) means affixed to said grill means and said rotisserie bar for moving said grill means upwardly and downwardly by rotation of said rotisserie bar.

4,334,517

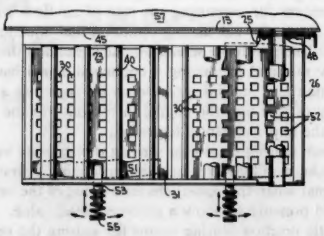
HEAT EXCHANGER UNIT

Bruce Sweitzer, Rte. 2, Box 20-A, Swanton, Md. 21561

Filed Jun. 27, 1979, Ser. No. 52,609

Int. Cl.³ F24B *7/00, 1/02;* F23J *1/06*

U.S. Cl. 126—121 **9 Claims**



1. A heat exchanger unit suitable for placement along the floor of a fireplace and for connection to a fireplace heat form or heatalator, said heat exchanger unit comprising:

(a) a unitary frame including front and rear walls extending upwardly from opposite sides of a generally rectangular wall;

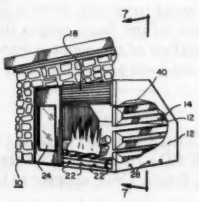
(b) means for supporting said frame above the floor of said fireplace;
(c) means for attaching said rear wall to a fireplace wall;
(d) means for conducting air from an adjacent room through the frame and into said heat form or heatalator comprising a plurality of generally cylindrical open-ended tubes connected to said front and rear walls wherein the open ends of each of said tubular elements are attached to apertures in said front and rear walls, with one open end of each of said tubular elements placed within one of said front wall apertures and the other open end of each tubular element attached to one of said rear wall apertures, with said rear wall apertures being positioned at a greater height from said bottom wall than said front wall apertures so that said tubular elements slant upwardly from said front wall toward said rear wall for connection to a fireplace heat form or heatalator; and
(e) means positioned along said bottom wall for removing ashes from the bottom of said unit.

4,334,518

HEATING SYSTEM

Sterling L. Ort, Lewisberry, Pa., assignor to Sol-Fire Inc., Lewisberry, Pa.

Filed May 28, 1980, Ser. No. 153,992
Int. Cl.³ F24B *9/04*; F24D *3/00*
U.S. Cl. 126—132 **10 Claims**



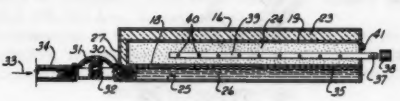
1. A heating system for fireplaces and the like, having a fuel combustion area and an exhaust path for hot gases, comprising:
(a) A combustion air supply providing air at a lower portion of the fuel combustion area;
(b) A hollow metal jacket enclosing the fuel combustion area on three sides, said jacket having lower air holes along a lower edge thereof for drawing oxygen-rich air from the fuel combustion area, and upper air holes for discharging the oxygen-rich air into the exhaust path;
(c) A first heat exchanger placed loosely in the hollow of said jacket and having channels for carrying a heat transfer fluid, said fluid accumulating heat energy from contact with the first heat exchanger, the first heat exchanger from contact with the metal jacket, and the metal jacket from the combusting fuel, a portion of the heat energy serving to heat the oxygen-rich air passing through the jacket;
(d) A second heat exchanger disposed in the exhaust path, and connected to said first heat exchanger via an input pipe and an output pipe, the heat transfer fluid accumulating further heat energy within the second heat exchanger from the exhaust gases passing through the exhaust path;
(e) A source of heat transfer fluid, in fluid communication with the first and second heat exchangers, whereby the system may be charged with heat transfer fluid; and,
(f) Means for transferring the accumulated heat energy in said fluid to an object or space to be heated, said means for transferring accumulated heat energy connected in a fluid loop including the first and second heat exchangers.

4,334,519

PORTABLE HEATER FOR GENERATING AND CIRCULATING HEAT IN WEARING APPAREL

Stanley Cieslak, 14 Creek Rd., and Leonard K. Cieslak, 15 Creek Rd., both of McKees Rocks, Pa. 15136

Continuation-in-part of Ser. No. 49,059, Jun. 18, 1979, Pat. No. 4,281,418, which is a continuation-in-part of Ser. No. 875,815, Feb. 7, 1978, Pat. No. 4,180,922. This application Sep. 15, 1980, Ser. No. 186,954
Int. Cl.³ A61F *7/08*
U.S. Cl. 126—204 **3 Claims**



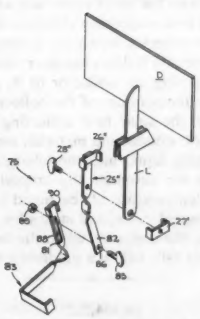
1. A portable heater for generating and circulating heat in wearing apparel or the like comprising a compact case capable of being carried on a person and having a cavity therein adapted to receive a chemical heat cartridge, a chemical heat cartridge removably received in said cavity, a liquid reservoir in said case positioned for radiant heat transfer from said chemical heat cartridge through an inside heat exchanger wall of said case, a flexible liquid conduit having both ends thereof connected for circulation of the heated liquid from said reservoir through said conduit in a closed circuit, and pump means connected to said conduit to circulate heated liquid from said reservoir through said conduit on demand, said chemical heat cartridge consisting of a sealed container containing a chemical composition which reacts with an activating chemical when mixed therewith to provide an exothermic chemical reaction, and an access on said container and having a closure which is removable to provide access to the interior of said container for the insertion of an activating chemical.

4,334,520

ACCESSORY FOR FIREPLACE DAMPER

Henry A. La Pointe, 111 Almaden Blvd., San Jose, Calif. 95198

Filed Aug. 8, 1980, Ser. No. 176,475
Int. Cl.³ F23L *13/02*
U.S. Cl. 126—288 **9 Claims**

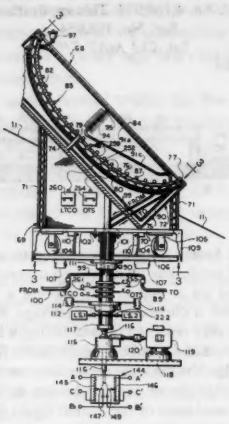


1. An accessory for a fireplace damper having an actuating member connected thereto comprising an accessory handle, an intermediate member connected to and projecting away from said handle, an attachment member connected to said intermediate member and forming an extension thereof, a pair of clamp members mounted on said attachment member in spaced relation for gripping the actuating member of the fireplace damper at spaced points, whereby the movement of said accessory handle controls the opening and closing of the damper.

4,334,521
SOLAR ENERGY SYSTEM

Walter Jacoby, Toms River, N.J., assignor to Solar Optimizing Systems, Inc., Toms River, N.J.

Filed Feb. 6, 1978, Ser. No. 875,176
Int. Cl.³ F24J 3/02
U.S. Cl. 126—425 12 Claims



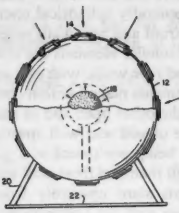
1. In combination, a solar tracing sensor comprising a support mounted to have successive zones thereof facing the sun in its travel across the sky during the day, and a plurality of similar heat-responsive elements mounted on the support in angularly spaced relationship so that successive elements during the day are the most highly heated by the sun during successive predetermined time periods, and a dirigible solar heat collector controlled by the solar tracking sensor, comprising a reflector having a reflecting side, means mounting the reflector so that its reflecting side faces the sun, solar heat collecting means disposed on the reflector to receive heat reflected therefrom, means for turning the reflector in a forward direction about an axis so that it follows the sun in its travel across the sky including a stepping motor, means connecting the motor to the reflector to rotate the latter about said axis, means responsive to successive heat-responsive elements for controlling the motor to drive the reflector forwardly in respective successive steps so that it generally follows the sun in its travel, means for automatically returning the collector to its starting, morning position when the temperature of the collector exceeds a predetermined value, the solar heat collecting means including tubing made of heat conducting material, means for introducing a heat collecting liquid into the tubing and exhausting it therefrom, means for automatically emptying the tubing of liquid when the temperature of the liquid in the tubing falls below a predetermined value, and means for de-energizing the means for turning the collector when the temperature of the liquid in the tubing falls below a predetermined value.

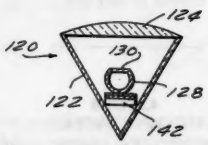
4,334,522
SOLAR HEAT APPARATUS

Joseph Dukess, 931 Greacen Point Rd., Mamaroneck, N.Y. 10543

Continuation-in-part of Ser. No. 794,448, May 6, 1977, Pat. No. 4,166,769. This application Aug. 15, 1979, Ser. No. 66,751
The portion of the term of this patent subsequent to Sep. 4, 1996, has been disclaimed.
Int. Cl.³ F24J 3/02
U.S. Cl. 126—440 10 Claims

1. A solar energy device comprising:
a member adapted to contain a liquid,
at least one lens spaced from the member for concentrating rays from the sun on a surface of the member;
means for introducing relatively cold liquid into the member and withdrawing liquid at a higher temperature from the member, and



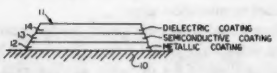


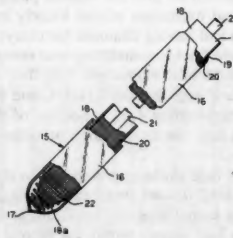
means for relatively moving the member surface and lens toward and away from each other in response to changes in temperature of the liquid within the member so as to move said surface of the member into and out of coincidence with the focal point of the lens.

4,334,523
SOLAR ENERGY COLLECTOR HAVING SOLAR SELECTIVE COATING OF LOW REFLECTANCE

Louis Spanoudis, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Jun. 23, 1980, Ser. No. 162,220
Int. Cl.³ F24J 3/07
U.S. Cl. 126—443 7 Claims



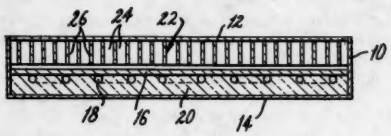


1. A solar energy absorber comprising a substrate with a multiple coating including a coating of aluminum, a coating of black chrome overlying said aluminum coating and a coating of magnesium fluoride overlying said black chrome coating, the thickness of said magnesium fluoride coating being of a magnitude to decrease reflectance from said aluminum coating by destructive interference.

4,334,524
SOLAR HEATER WITH BONDLESS HONEYCOMB HEAT TRAP

Robert W. McCullough, Tarrytown, and Thomas A. Hewett, Chappaqua, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 824,105, Aug. 12, 1977, abandoned.
This application Apr. 18, 1980, Ser. No. 141,475
Int. Cl.³ F24J 3/02
U.S. Cl. 126—449 13 Claims

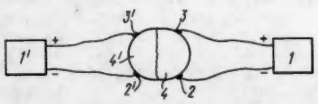


1. In a solar air heater comprising in combination:
a housing having a light-transmitting front wall for passing incident solar radiation and including an inlet and an outlet for establishing a flow path for a gaseous medium to be heated,
a gas permeable radiation absorbent collector element positioned across the flow paths in said housing and arranged to accept incident solar radiation passing through said front wall and to transfer the absorbed heat to said gaseous medium passing along said flow path through said collector element, and
a heat trap disposed in said housing adjacent to the surface of said front wall facing said collector element, said heat trap comprising a cellular honeycomb structure containing a multiplicity of open cells in communication with said flow path and having cell walls that are substantially perpendicular to said front wall and which serve as baffle elements to inhibit the flow of said gaseous medium through said heat trap in a direction substantially parallel to the plane of said front wall, said cellular structure being maintained in at least firm mechanical contact with said front wall and being composed of a light-transmitting material which is opaque to infrared radiation emitted from said collector element in a direction toward said front wall, such that said heat trap is integrally formed as a unitary member thereby eliminating interfacial surfaces, joints or adhesive bonds therebetween which can act as scattering sites for incidental light.

4,334,525
METHOD OF AFFECTING CENTRAL NERVOUS SYSTEM BY PULSE CURRENTS

Eduard M. Kastrubin, Frunzenskaya naberezhnaya, 36, kv. 105, Moscow, U.S.S.R.

Filed Nov. 12, 1980, Ser. No. 205,982
Int. Cl.³ A61N 1/34
U.S. Cl. 128—1 C 4 Claims



1. A method of affecting the central nervous system by pulse currents consisting in that the region of the forehead and the neck under the mastoid processes is affected by a combination of pulse current and an additional d-c component, wherein, according to the invention, current is initially applied to the left hemisphere after which the right hemisphere is affected simultaneously and separately at the moment complex resistance of the left hemisphere decreases, the mean current in the region of the right hemisphere being constantly maintained greater than the mean current in the region of the left hemisphere.

4,334,526
METHOD FOR ADMINISTERING A DISSOCIATIVE, UNCONSCIOUS TYPE OF ANESTHESIA

Edward N. Hamacher, Suite 660, Southcenter Medical Bldg., West 105, 8th Ave., Spokane, Wash. 99204

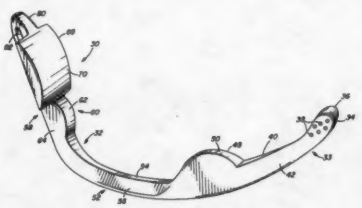
Continuation of Ser. No. 42,027, May 24, 1979, Pat. No. 4,246,894. This application Dec. 22, 1980, Ser. No. 218,580
The portion of the term of this patent subsequent to Jan. 27, 1998, has been disclaimed.
Int. Cl.³ A61B 19/00
U.S. Cl. 128—1 R 17 Claims

1. A method of inducing a dissociative type of sedation in a patient for surgical procedures which is safe and capable of being used in an office and being administered by a nurse or physician without anesthesia training, the process allowing a minimal recovery period for the patient, comprising:
administering intravenously a therapeutic dose of an anticholinergic agent to stabilize heart action, reduce and prevent laryngeal spasm,
administering intravenously a therapeutic dose of a basal hypnotic sufficient to relieve patient stress reaction, and
administering intravenously a dissociative and general analgesic drug in an effective dose to induce a state of dissociation in the patient so that the patient is free of pain during infiltration of a local anesthetic into the skin and subcutaneous tissue of the patient where the surgical procedure is to take place and can be given and respond to commands during the surgical procedure.

4,334,527
SUPPORT APPARATUS FOR PROSTHETIC APPLIANCE

Robert E. Clinton, 6403 S. 5th Ave., Phoenix, Ariz. 85041

Filed Jan. 8, 1981, Ser. No. 223,253
Int. Cl.³ A61F 5/00
U.S. Cl. 128—79 10 Claims

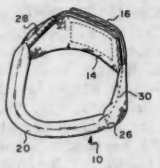


1. Support apparatus for securing a penile prosthesis to a user, comprising in combination:
base means, including
a forward portion having a forward tip,
a forward positioning protuberance for positioning the forward portion against the user's torso,
an intermediate portion extending rearwardly from the forward portion, and
a rear portion connected to the intermediate portion and including a rear positioning protuberance; and
fastening means for securing the base means to the prosthesis.

4,334,528
KNEE STRAP

George R. Gauvry, Hainesport, N.J., assignor to Cho-Pat, Inc., Hainesport, N.J.

Filed Jul. 21, 1980, Ser. No. 170,711
Int. Cl.[3] A41D *13/06*
U.S. Cl. 128—80 C 4 Claims



1. A knee strap for aiding in the alignment of a patient's patella for reducing trauma on the undersurface of the patella comprising:

an elongated fabric strap member having a length at least as long as the circumference of the patient's leg at a point immediately below the patella so that said strap member can be wrapped there around;

said member including a pair of end portions and a substantially tubularly shaped center portion of circular cross section, said center portion being comprised of part of said fabric wrapped about a compressible tubular member, said end portions extending from either end of said center portion and also being comprised of said fabric;

each of said end portions being substantially flat and substantially flexible;

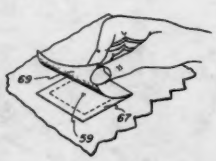
Velcro fastening means associated with said end portions for fastening the same together when the knee strap is in place on a patient's leg so as to form a closed loop;

said center portion being more rigid than said end portions and having a diameter which is less than the height of said end portions.

4,334,529
WIRTH'S STERILE, DISPOSABLE SURGICAL DRAPE

Carl R. Wirth, Slingerlands, N.Y., assignor to Caroline G. Wirth, Slingerlands and Roberta H. Wessendorf, Guilderland, both of, N.Y., a part interest

Filed Apr. 14, 1981, Ser. No. 253,944
Int. Cl.[3] A61F *13/00*
U.S. Cl. 128—132 D 1 Claim



1. A sterile, disposable surgical drape for covering a surgical patient on the operating table, and for providing and maintaining a sterile field in which a surgeon can operate or perform other diagnostic procedures requiring the use of tubing, wiring, cables, or the like, operatively connected to non-sterile equipment; said surgical drape comprising top and bottom layers, elastic material, very small holes, openings and covering tabs, said top and bottom layers sandwiching said elastic material therebetween, said very small holes being in said elastic material, said very small holes being substantially, equally-spaced thereon, said very small holes functioning to tightly hold and retain said tubing, cables, wiring and the like, said openings being in said top and bottom layers, said openings being in aligned relationship, said openings exposing said elastic material and said very small holes, said very small holes being substantially centered within said openings, said covering tabs having sealing tabs to seal said openings and maintain the sterile condition of said drape, said covering tabs having lift tabs engageable in manipulative relationship to pull away and remove said sealing tabs sealing said openings and to thereby expose said very small holes; and whereby said tubing, wiring, cables, and the like, may be sterilized, and neatly arranged and carried by said very small holes, whereby those portions of said tubing, wiring, cables, and the like, exposed in such sterile operating field, may be restricted to workable and practicable lengths to both perform their intended functions and to prevent same from being disposed below the operating-table plane and from thereby introducing the condition of non-sterility or bacterial contamination into such sterile operating field, and whereby said tubing, wiring, cables, and the like, being disposed through and carried by said very small holes, prevents same from lifting said sterile drape away from or moving said sterile drape away from such patient to bacterially contaminate such sterile operating field, and whereby such drape, so arranged and constructed, cooperatively functions to prevent bacterial contamination of such sterile operating field regardless of whether said non-sterile equipment is disposed or located under said drape or away from such sterile operating field.

4,334,530
INDICIA-BEARING ADHESIVE BANDAGES

Donald S. Hassell, 37 Westdale Rd., Holbrook, Mass. 02343

Filed Sep. 12, 1980, Ser. No. 186,759
Int. Cl.[3] A61L *15/00*
U.S. Cl. 128—156 5 Claims

1. In an adhesive bandage comprising a flexible backing, a pressure-sensitive adhesive on one side of said backing, an absorbent pad carried by said backing on said adhesive-faced side, said absorbent pad being positioned intermediate transverse edges of said backing;

the improvement wherein the other non-adhesive side of said backing is provided with markings indicating which transverse edge of said backing should be removed first when removing said bandage from a wound.

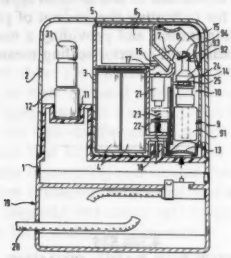
4,334,531
INHALATOR

Ernst Reichl, Munich, and Herbert Marloth, Siegertsbrunn, both of Fed. Rep. of Germany, assignors to Bosch-Siemens Hausgeräte GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 18, 1980, Ser. No. 160,621
Claims priority, application Fed. Rep. of Germany, Jun. 19, 1979, 7917568[U]
Int. Cl.[3] A61M *11/00*
U.S. Cl. 128—200.14 3 Claims

1. An inhalator comprising a housing having a lower portion and a removable cap portion mounted on said lower portion thereby defining a space therein, wall means in said space defining a compartment, said compartment having an outlet opening, a cover removably mounted over said outlet opening wherein said cap and cover are removable to allow access into said space and compartment from outside said housing, a first fluid container having an outlet and pump means for pumping fluid from said outlet of said first fluid container when said

pump means and first fluid container are compressed, a second fluid container having an outlet with means for emitting fluid from said outlet mounted therein, said second fluid container having a length shorter than the length of said first fluid container, receptacle means mounted in said compartment for removably receiving and holding one of said containers such that the outlet of said respective container is adjacent said outlet opening of said compartment, electrically operated atomizing means mounted in said compartment adjacent said outlet of one of said fluid containers for receiving and atomizing fluid emitted from the outlet of one of said containers, electrical source means mounted in said space, a switch mounted in said compartment and electrically connected between said electrical source means and said atomizing means, holding means mounted in said space for receiving and storing



one of said containers, said first and second fluid containers being removably and interch ngeably mounted between said receptacle means and said holding means, manually operable actuating means slidably mounted in said compartment and operable, when said first fluid container is mounted in said receptacle means, for simultaneously actuating said switch for turning said atomizing means on and off and for impinging upon said first fluid container for driving said pump means and pumping fluid from said first fluid container toward said atomizing means, and operable, when said second fluid container is mounted in said receptacle means, for solely actuating said switch for turning said atomizing means on and off as fluid is transferred to said atomizing means from said fluid emitting means, whereby one of said containers is mounted in said receptacle means for use while the other is mounted in said holding means for storage.

4,334,532

VALVES AND BREATHING APPARATUS INCORPORATING SUCH VALVES

Peter J. Jackson, Dorking, England, assignor to Chubb Panorama Limited, Bognor Regis, England

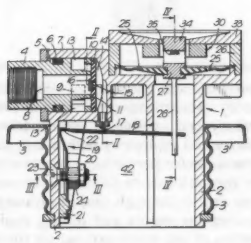
Filed Jun. 20, 1980, Ser. No. 161,624

Claims priority, application United Kingdom, Jun. 21, 1979, 7921698; Sep. 26, 1979, 7933304

Int. Cl.³ A62B 7/04

U.S. Cl. 128—204.26 **11 Claims**

1. A breathing gas demand valve comprising means defining an inlet chamber for receiving gas from a breathing gas supply; means defining an outlet chamber for delivering gas to breathing interface means; valve means provided in the gas flowpath between said inlet and outlet chambers and constructed and arranged to control the main gas flow through the valve from the inlet chamber to the outlet chamber; means defining a control chamber adapted to have a gas pressure therein; said valve means being responsive to the gas pressure in said control chamber whereby said main gas flow is controlled by said valve means responsive to the gas pressure in the control chamber; an inlet orifice connecting the control chamber with the inlet chamber and through which gas is substantially continuously bled from the inlet chamber to the control chamber; an outlet orifice connecting the control chamber with the outlet chamber and through which a jet of gas is substantially continuously vented from the control chamber into the outlet chamber; a pressure-responsive member bounding on one side thereof the outlet chamber and exposed on the other side to a reference pressure, said pressure-responsive member being constructed and arranged to deflect in response to pressure changes within the outlet chamber consequent to the respiration of a user of the valve; and a control member which is distinct from but coupled to said pressure-responsive member, and located within the outlet chamber; the control member comprising a two-armed, spring element a first arm of which is held firmly to a fixed part of the valve structure and the second arm of which is coupled to the pressure-responsive member with a portion of the second arm lying adjacent to the outlet orifice in the path of the jet of gas vented from the control chamber through the outlet orifice; the second arm of the control member being deflectable relative to the first arm about a flexural pivot established in said control member and



arranged to deflect with deflection of the pressure-responsive member to move the said portion of said second arm towards or away from the outlet orifice in dependence upon pressure changes within said outlet chamber, thereby to control the rate of venting of gas from the control chamber and thereby the gas pressure within said control chamber; the control member being so constructed and arranged that the aforesaid movement of said portion of the second arm thereof controls the rate of venting of gas from the control chamber by variable interaction with said jet and is arranged to establish such gas pressure in the control chamber as to shut off the main gas flow through the valve without said portion of said second arm seating physically over said outlet orifice; the control member being self-biasing, resiliently, towards a position in which said portion of the second arm thereof is at a set spacing from said outlet orifice; and means associated with said first arm and said valve structure for applying a variable force to a portion of said first arm to vary said set spacing between said portion of said second arm and said outlet orifice.

4,334,533

BREATHING METHOD AND APPARATUS FOR SIMULATING HIGH ALTITUDE CONDITIONS

Melvyn L. Henkin, 5011 Donna Ave., Tarzana, Calif. 91356

Continuation-in-part of Ser. No. 901,621, May 1, 1978, Pat. No. 4,210,137, which is a continuation-in-part of Ser. No. 646,424, Jan. 5, 1976, Pat. No. 4,086,923. This application Jun. 2, 1980, Ser. No. 155,193

Int. Cl.³ A62B 7/10

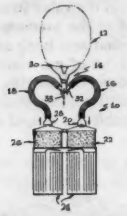
U.S. Cl. 128—205.28 **18 Claims**

1. Apparatus for supplying an air mixture for inspiration by a user comprised solely of the user's previously expired air and ambient air, which mixture has a lower oxygen concentration than the ambient air, said apparatus comprising:

inspiratory path means having open first and second ends and including valve means therein for permitting air flow only in the direction from said second to said first end;

expiratory path means having first and second ends and including valve means therein for permitting air flow only in the direction from said first to said second end;

air reservoir means;
means coupling said expiratory path means second end to said reservoir means for supplying air thereto;
means coupling said inspiratory path means second end to said reservoir means for drawing air therefrom;
CO_2 absorber means incorporated in said expiratory and/or inspiratory path means; and
user breathing means communicating with the first ends of said inspiratory and expiratory path means and including an orifice providing bi-directional flow communication



with the environment located between said inspiratory and expiratory valve means proximate to the first ends of said inspiratory and expiratory path means, said orifice and inspiratory and expiratory path means sized to divide flow therebetween for permitting a user during inspiration to draw air through said orifice from the environment to mix with air drawn through said inspiratory path means from said reservoir means and during expiration to exhaust a portion of the user's expired air through said orifice to the environment and a portion through said expiratory path means into said reservoir means.

4,334,534

EMERGENCY AIRWAY MANAGEMENT DEVICE

George T. Ozaki, San Diego, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed Sep. 18, 1980, Ser. No. 188,180
Int. Cl.[3] A61M *25/00*
U.S. Cl. 128—207.15 **1 Claim**

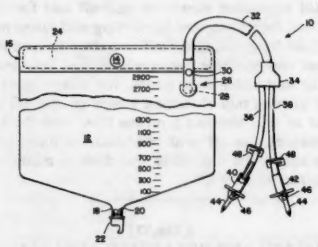
1. A flexible emergency airway device for insertion through the mouth and randomly lodging either in the trachea or esophagus for resuscitating a patient, which comprises:
an outer tube having a distal end and a proximal end and having at least one air port in the wall of said outer tube located intermediate the distal and proximal ends of said outer tube, said distal end of said outer tube being angularly cut and having a side port in the wall of said outer tube opposite from said angular cut;
inner tube means for providing an airway through the mouth of a patient, placed longitudinally along and within the bore of said outer tube and terminating adjacent the distal end of said outer tube;
interior sealing means for forming an airtight seal between the exterior wall of said inner tube means and interior wall of said outer tube and placed between said air port and the distal end of said inner tube means;
exterior sealing means for forming an effective seal with the walls of the trachea or esophagus depending upon which passage said outer tube is lodged in, and attached adjacent said distal end and encircling said outer tube;
a pilot balloon connected to said exterior sealing means by a passageway for indicating the amount of pressure in said exterior sealing means, and providing a means for inflating and deflating said exterior sealing means.

4,334,535

CONDUIT DEVICE FOR RAPID PRIMING AND FLOW OF LIQUID

David A. Wilson, Novato, and Frank J. Serany, Danville, both of Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Aug. 12, 1980, Ser. No. 177,700
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—214 D **22 Claims**



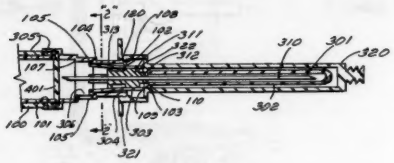
1. A pooling and dispensing container set for parenteral solutions having an inlet port and an outlet port, the outlet port having closure means adapted for being opened by a cannula on a parenteral solution administration set, the inlet port being connected to a pooling system comprising a length of enlarged inner diameter tubing one end of which is connected to the inlet port and the other end being connected to an adaptor having a first and a second inlet, first and second pooling conduits each connected at its one end to the first and second inlets, respectively, the inner diameters of the pooling conduits being smaller than the inner diameter of the enlarged tubing, the other ends of the pooling conduits each being joined to a first and a second primer tube, respectively, each primer tube being connected at its outer end to a hollow coupler having means at one end for entry into a container of parenteral solution and an exit orifice at the other end, the primer tube surrounding the orifice and having an inner diameter larger than the diameter of a drop of the solution released from the orifice, the inner diameter of the pooling conduit being smaller than the inner diameter of the primer tube and at least no greater than the diameter of the drop of solution.

4,334,536

HYPODERMIC SYRINGE NEEDLE ASSEMBLY

Frederick W. Pfleger, 1152 Barbara Dr., Cherry Hill, N.J. 08003

Filed Nov. 5, 1980, Ser. No. 204,319
Int. Cl.³ A61M 5/00
U.S. Cl. 128—218 DA 15 Claims



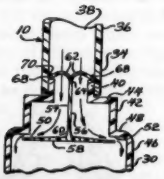
1. A unitized cover for a hypodermic syringe needle having an outer end, an inner end, and a middle section comprising; a first cover for said outer end, a second cover for said inner end, a third cover for said middle section, a first breakable means connecting said first cover and said third cover, a second breakable means connecting said second cover and said third cover, said first breakable means and said second breakable means connecting said first cover, said second cover, and said third cover to form a unitized structure.

4,334,537

DRAINAGE RECEPTACLE WITH ANTI-REFLUX VALVE

James J. Peterson, Elgin, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Jan. 28, 1981, Ser. No. 229,382
Int. Cl.³ A61F 5/44
U.S. Cl. 128—275 6 Claims



1. An anti-reflux device, comprising:

a drainage receptacle having a chamber and a wall defining a lumen communicating with the chamber, said receptacle having an annular valve seat facing away from the lumen; and

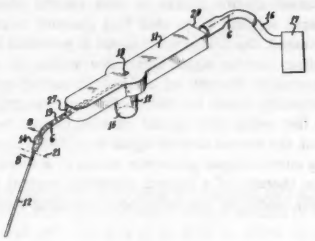
an elastic valve element having an elongated stem, a disc connected to one end of said stem and having an upper surface normally sealingly engaging against said seat, and means for retaining the other end of the stem to the wall with the disc biased against the seat and with the retaining means defining opening means to permit passage of liquid therethrough, said disc moving away from the seat responsive to passage of liquid onto the disc, the retaining means comprising a plurality of arcuate elastic radial retaining arms extending from the other end of the stem and being spaced peripherally around the stem to define openings between the arms, said arms being connected to the wall and biasing the disc against the seat.

4,334,538

ASPIRATOR FOR COLLECTING LIQUID SAMPLES

Steven K. Juhn, 2624 Rice Creek Ter., New Brighton, Minn. 55112

Filed Dec. 12, 1979, Ser. No. 103,072
Int. Cl.³ A61M 1/00
U.S. Cl. 128—276 7 Claims



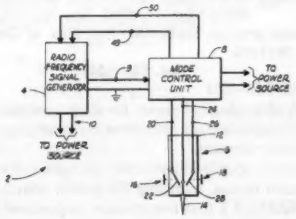
1. An aspirator for manually collecting samples of fluids from remote human body cavities comprising an elongated axially extending handle having a top surface, a bottom surface, a forward end, a rearward end, a centrally located cavity opening through said bottom surface of said handle, said handle between said cavity and said rearward end providing means for manually gripping thereof, a rigid passageway extending through said handle communicating said cavity with said forward end and said rearward end, said handle having an aspiration control finger vent located directly above the cavity and communicating with said cavity and said passageway through said top surface; a removably attached specimen collecting vial having an open top in air-tight attachment to said cavity; a separate removable flexible tube means extending from within said cavity and vial through said passageway and outwardly beyond said forward end for a predetermined distance, said tube means including means for providing an air-tight seal with said passageway; a removable length of a metal hollow tube extending outwardly from said forward end and encircling said flexible tube in an air-tight manner; and said rearward end including means for connecting said passageway to a source of vacuum.

4,334,539

ELECTROSURGICAL GENERATOR CONTROL APPARATUS

Warren L. Childs, Blanchard, and William T. Cronenwett, Norman, both of Okla., assignors to Cimarron Instruments, Inc., Oklahoma City, Okla.

Filed Apr. 28, 1980, Ser. No. 144,363
Int. Cl.³ A61B 17/36
U.S. Cl. 128—303.14 21 Claims



1. An apparatus for controlling an electronic surgical instrument which includes an alternating current signal generator means and a workpiece engaging means, said apparatus comprising:

first channel circuit means for providing a first control signal to said alternating current signal generator means;

second channel circuit means for providing a second control signal to said alternating current signal generator means;

means for providing said first channel circuit means and said second channel circuit means with an alternating current to; and

channel select means for selectably actuating either said first channel circuit means or said second channel circuit means so that when said first channel circuit means is actuated, the first control signal is provided to said alternating current signal generator means to activate the generation thereby of a first alternating current signal surgically usable by said workpiece engaging means and so that when said second channel circuit means is actuated, the second control signal is provided to said alternating current signal generator means to activate the generation thereby of a second alterating current signal surgically usable by said workpiece engaging means.

4,334,540

METHOD OF DIAGNOSING PERIODONTAL DISEASE THROUGH THE DETECTION OF PYRIDINE COMPOUNDS

George Preti, Philadelphia; James G. Kostelc, Glenside, and Philip R. Zelson, Drexel Hill, all of Pa., assignors to Monell Chemical Senses Center, Philadelphia, Pa.

Filed May 1, 1979, Ser. No. 35,018

Int. Cl.³ A61B *5/00*; G01N *1/00, 33/48*

U.S. Cl. 128—630 **17 Claims**

1. A method of evaluating an individual to determine and diagnose the existence of periodontal disease in the oral cavity of that individual, comprising the steps of:

(a) collecting a test substance from the oral cavity of the individual to be evaluated; and

(b) presenting that test substance to an indicator means for selectively responding at least qualitatively to the presence of at least one indicative diagnostic pyridine compound in that test substance, whereby a qualitative response of said indicator means diagnoses the existence of periodontal disease in said individual.

4,334,541

THERMAL PROTECTIVE CIRCUIT FOR A HYPEREMIA-INDUCING PHYSIOLOGICAL SENSOR

Helmut Leist, and Georg J. Ullrich, both of Freiburg im Breisgau, Fed. Rep. of Germany, assignors to Hellige, GmbH, Freiburg im Breisgau, Fed. Rep. of Germany

Filed Mar. 17, 1980, Ser. No. 130,639

Claims priority, application Fed. Rep. of Germany, Mar. 24, 1979, 2911601

Int. Cl.³ A61B *5/00*

U.S. Cl. 128—632 **4 Claims**

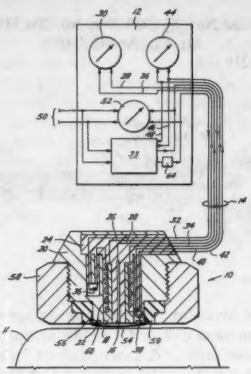
1. A physiological sensor for the transcutaneous determination of physiological phenomena, comprising

a heater element;

a remote source of power for energizing the heater element;

control means, including the power source, the heater element and a first temperature-responsive device, for thermostatically maintaining the temperature of the sensor substantially constant during normal use of the sensor; and

safety means, including a second temperature-responsive device, for interrupting energization of the heater element by maintaining the heater element disconnected from the power source whenever, due to failure of the control means, the temperature of the sensor exceeds a predetermined ceiling level, until intervention by an operator restores energization conditions.



4,334,542

ARTIFICIAL PALATE DEVICE FOR ELECTROPALATOGRAPH

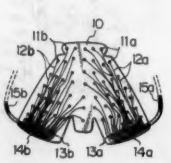
Kiyotoshi Takinishi, Koganei, and Masato Nakamura, Fuchu, both of Japan, assignors to Rion Co., Ltd., Tokyo, Japan

Filed May 8, 1980, Ser. No. 148,171

Claims priority, application Japan, May 10, 1979, 54/57341; Aug. 23, 1979, 54/107377

Int. Cl.³ A61B *5/10*; G09B *19/04*

U.S. Cl. 128—642 **6 Claims**



1. An artificial palate device for use in electropalatograph speech training and the like comprising a flexible electrically insulative base board substantially in the shape and dimensions of a human hard palate, a plurality of tongue contact sensing electrodes provided as spaced from each other on one surface of said base board, a plurality of lead wires corresponding in number to said electrodes and provided on said one surface of the base board, said lead wires being connected respectively at one end to each of the electrodes and led out of the base board as insulated from each other and from other electrodes, and means for covering substantially the said one surface of the base board and having a plurality of through holes made at positions corresponding to those of the electrodes for exposing at least a part of the respective electrodes out of said layer, said device being capable of intimately fitting a human hard palate and being retained therein.

4,334,543

METHOD AND APPARATUS FOR FLOW VELOCITY DETERMINATION

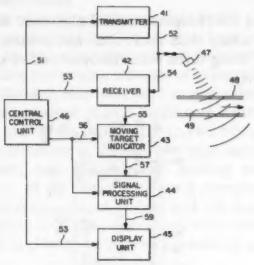
Rainer Fehr, Reinach, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Nov. 28, 1979, Ser. No. 97,978

Claims priority, application Switzerland, Dec. 4, 1978, 12361/78

Int. Cl.³ A61B *10/00*

U.S. Cl. 128—663 **9 Claims**



1. A method of determining flow velocities of flow material by measuring the phase difference between Doppler signals derived from wave pulses which are reflected by substantially one and the same reflector, which is an element of the flow material, at two different times, the interval between the times being predetermined, the Doppler signals carrying flow velocity information, each Doppler signal being demodulated in quadrature to produce a pair of electrical signals which jointly bear information representative of the phase of the Doppler signal, characterized in that it comprises:

(a) combining at least a first and a second pair of said electrical signals to produce a third pair of electrical signals which together bear information representative of the magnitude and sign of the phase difference between the Doppler signals from which the first and second pair of electrical signals are derived;

(b) forming mean-value signals, each corresponding to the mean value of one of the signals from said third pair of electrical signals; and (c) combining the mean-value signals to form an output signal which corresponds to the magnitude and sign of the average value of the phase difference between the Doppler signals, and thereby is representative of the flow velocity at the location of the reflector.

4,334,544

EAR LOBE CLIP WITH HEART BEAT SENSOR

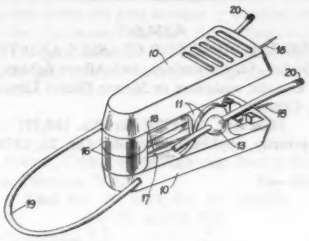
Loran R. Hill, Olney, Ill., and Steven E. Titcomb, Milton, Mass., assignors to AMF Incorporated, White Plains, N.Y.

Filed Apr. 28, 1980, Ser. No. 144,720

Int. Cl.³ A61B *5/02*

U.S. Cl. 128—664 **3 Claims**

1. An ear lobe clip with heart beat sensor means therein, comprising a pair of equal length plastic material pivot arms, said pair of arms facing each other in spaced and generally parallel relationship, said pair of arms having a pivotal connection with each other at their respective central portions for pivotal movement of each of their two pairs of opposite ends towards and away from each other, a spring at said pivotal connection, said spring being operative to bias one of said pair of opposite ends into light engagement with each other for clipping said one pair of opposite ends on to an ear lobe, heart beat sensor means at each of said one pair of opposite ends, wires electrically connected to each of said sensor means and extending along said arms and out therefrom at the other pair of opposite ends of said arms, adjustable means for hanging said arms off the ear of the lobe to which said arms are clipped, said adjustable means comprising a pair of apertures formed on said arms, a flexible strip of plastic material, opposite ends of said strip extending into said apertures whereby the remainder



of said strip comprises an open loop for hanging said arms on said ear, and said strip opposite ends having a friction fit in said apertures to pull said opposite strip ends in either direction through said apertures to adjustably set the size of said loop.

4,334,545

BIOFEEDBACK SYSTEM

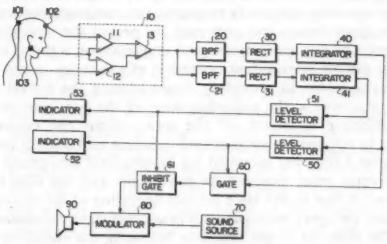
Kazumasa Shiga, Kawasaki, Japan, assignor to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Nov. 28, 1979, Ser. No. 97,985

Claims priority, application Japan, Nov. 28, 1978, 53-147449

Int. Cl.³ A61B *5/04*

U.S. Cl. 128—732 **22 Claims**



1. A biofeedback system comprising, means for sensing electrical activity within a human body to generate a single source signal representing the sensed electrical activity, means for deriving from said source signal a first physiological signal normally indicative of the presence of a desired state of mind and a second physiological signal indicative of the absence of said desired state of mind, indicator means, and gate means for applying said first physiological signal to said indicator means to derive an indication in the absence of said second physiological signal and inhibiting said first physiological signal in the presence of said second physiological signal.

4,334,546

COSMETIC PENCIL

David T. Floyd, Milford; John H. Murphy, Matamoras, and John J. Brodzinski, Milford, all of Pa., assignors to Kolmar Laboratories Inc., Port Jervis, N.Y.

Filed Sep. 8, 1980, Ser. No. 185,229

Int. Cl.³ A45D *40/30*

U.S. Cl. 132—88.5 **11 Claims**

1. A cosmetic pencil, comprising an outer tubular barrel having an axial bore, and an inner core composed of a composition for topical application disposed within the bore, said barrel comprising from 5% to 20% by weight of hydrogenated castor oil with the degree of hydrogenation being such that the

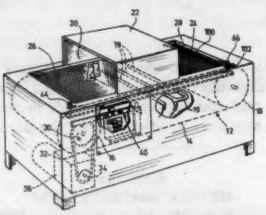
hydrogenated castor oil has a softening point above 50° C., and the balance being polyethylene, said barrel having improved toughness, improved sharpenability and increased resistance to stress cracking.

4,334,547

WASHING MACHINE FOR GLASSES AND THE LIKE

Howard Diebel, St. Catharines, and Albert deMan, Vineland, both of Canada, assignors to Moyer Diebel Limited, Jordan Station, Canada

Filed Apr. 14, 1980, Ser. No. 140,371
Claims priority, application Canada, Apr. 20, 1979, 326022
Int. Cl.³ B08B 3/02
U.S. Cl. 134—46 **9 Claims**



1. A washing machine comprising a conveyor for conveying glasses and other utensils from a loading zone, through a washing zone including spray means to an unloading zone and control means associated with said spray means and conveyor means operable selectively to permit the continuous operation of the spray means and conveyor, to permit the intermittent operation of the spray means and conveyor on a timed cycle and to permit intermittent operation of the spray means and conveyor means to providing means sensing the arrival of a glass or utensil at the unloading zone of the conveyor means and effective to switch off the spray means and conveyor means in response to such arrival, wherein said control means comprise a slide bar mounted for longitudinal movement;

a pivoted lever mounted for movement with the slide bar;

a switch that in one state permits operation of the conveyor and the spray means and not in another state, movement of the slide bar in one direction operating the switch to one state and in the other direction operating the switch to the other state, and means for alternatively moving the said pivoted lever between;

a first position in which it engages a timing device that will move the lever and the slide bar to operate the switch after a predetermined period of time;

a second position in which the lever is movable by hand alone to operate the switch, and

a third position in which the lever is urged to operate the switch to operate the conveyor and the spray means until moved in the opposite direction by a conveyed glass engaging a stop member coupled in the slide bar.

4,334,548

APPARATUS FOR DEFATTING TREATMENT OF CONTAINERS

Takeshi Konagaya, Yaizu, and Shunji Yano, Sagamihara, both of Japan, assignors to Daiwa Can Company, Japan

Filed Feb. 13, 1981, Ser. No. 234,417
Int. Cl.³ B08B 9/08
U.S. Cl. 134—170 **6 Claims**

1. An apparatus for subjecting containers being open at one end to defatting treatment with a volatile cleaning liquid for defatting treatment which is a pot assembly composed of a body and a crown,

the body being composed of a centering ring, a core and a shell;

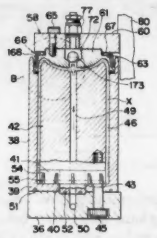
the centering ring being provided with a plurality of fins at the lower end thereof, said fins having projections for receiving and supporting the open end of the container,

the core having outer and top surfaces of figures similar to the body and bottom surfaces of said container and being fitted with said centering ring at the lower end thereof,

the shell being outside of said centering ring and said core, the inner surface of the shell being of a figure similar to that of the body surface of said container and a narrow gap being formed between the inner surface of the container and the outer surfaces of the centering ring and core;

a cavity for the reception of said container being defined by said centering ring, core, shell and crown;

the crown being fitted with the open end of said shell to seal said cavity;



the cavity being divided into two chambers by receiving said container into said cavity at a predetermined place;

the cavity being of a size enough to admit said volatile cleaning liquid for defatting treatment to fill up these two chambers and flow along the inner and outer surfaces of said container; and

the pot assembly being provided with inlet and outlet passages for said cleaning liquid for defatting treatment;

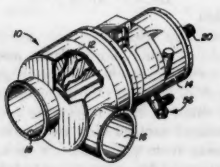
the characteristic aspect being in that, when said cavity is sealed, at least said shell and said crown form a sealing portion, and the inner surfaces of said shell and crown adjacent to the sealing portion are smooth and form substantially one plane.

4,334,549

PNEUMATIC STARTER OVERTEMPERATURE CONTROL

Darrel W. Burch, and James P. Wojciehowski, both of Phoenix, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 886,381, Mar. 13, 1978, Pat. No. 4,220,439. This application Feb. 8, 1980, Ser. No. 119,620
Int. Cl.³ F16K 12/40
U.S. Cl. 137—72 **12 Claims**



1. A fusible plug for relieving pressure in a gas duct in response to the heat of a liquid within a housing, comprising:

an elongate hollowed body threadably secured to said housing with an inner end of said body immersed in said liquid, said body having an outer end disposed exteriorly of said housing in substantially axial alignment with said inner

end and having a longitudinally extending outer counter bore presenting an open exhaust port, said body having an inlet port communicating with said duct and opening into the interior of said body at a location exteriorly of said housing and intermediate said inner and outer ends;

an elongated stem valve positioned within the interior of said body and including a valve section movably received in said outer counter bore, said valve section normally being in a closed position in sealing engagement with said body to prevent flow of gas from said duct and inlet port to said exhaust port, said stem valve including an inner end exposed to said liquid;

spring means extending between said body and said stem valve for urging said valve section longitudinally in a direction toward said outer end of said body toward an open position permitting exhaust of pressurized gas from said duct through said inlet port to said exhaust port; and

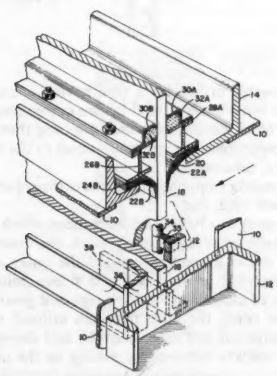
a fusible metal exposed to said liquid and normally securing said inner end of the stem valve to said body to hold said valve in said closed position when said fusible metal is in a solid state, said fusible metal melting whenever said temperature of the liquid exceeds a preselected value to permit said spring means to shift said valve section to said open position in a direction away from sealing engagement with said body to relieve pressure in said duct.

4,334,550

SEALING MEANS FOR SLIDING GATE VALVE

Peter J. Connor, Bethlehem, and Donald K. Hagar, Macungie, both of Pa., assignors to Mosser Industries, Inc., Bethlehem, Pa.

Filed Dec. 10, 1975, Ser. No. 639,871
Int. Cl.³ F16K *3/312, 3/02, 25/00*
U.S. Cl. 137—242 **13 Claims**



1. An apparatus for controlling the flow of a fluid comprising:

(a) a conduit for the transport and containment of the said fluid, said conduit having an aperture in its wall, generally transverse to the direction of fluid flow through the conduit and extending approximately the entire width of the conduit;

(b) a gate member adapted for sliding movement through the aperture between conduit-open position, wherein the gate member is withdrawn completely from the conduit, and conduit-closed position, wherein the gate member extends through the aperture and into the conduit to restrict the flow of the said fluid through the conduit;

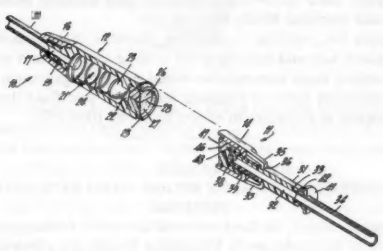
(c) each conduit-transversing side of the aperture having one or more cooperating, flat sealing strips made of fluid-impermeable, resilient material, the strips being fixedly mounted in the apparatus, the combined width across the aperture of one or more of the said fixedly mounted opposing sealing strips in a plane perpendicular to the plane of the said gate member being greater than the width of the said aperture, such that when the gate member is withdrawn completely from the conduit one or more of the opposed sealing strips overlap in flat, sealing engagement, effectively closing the aperture and preventing the escape of fluid therethrough, and when the gate member is inserted through the aperture into the conduit the said flat sealing strips are bent aside by the gate member and biased against the opposite faces of the gate member in sealing engagement therewith.

4,334,551

CONNECTOR

Robert D. Pfister, Cary, N.C., assignor to Becton Dickinson & Company, Paramus, N.J.

Filed Apr. 30, 1979, Ser. No. 34,855
Int. Cl.³ A61M *3/00*
U.S. Cl. 137—614.03 **13 Claims**



1. A sterile connection assembly, comprising:

a pair of terminal connectors for connection to each other, each of said connectors including a housing having a sterile interior and an open connecting end; each of said connectors including an openable closure means for closing the housing interior from the open connecting end and maintaining sterile integrity, each of said closure means comprising a deformable resilient barrier means including at least one preformed opening which is normally closed and which is opened upon deforming the barrier means and which is closed upon release of deformation by the resiliency of the barrier means, and one of said housings including an integral movable deforming means in the interior thereof, said deforming means after connection of the connectors being movable relative to said one of said housings to apply a releasable deformation force to the barrier means in each of said connectors which deformation force opens the at least one preformed openings in the barrier means of each of said connectors.

4,334,552

DIVERTER VALVE

Robert Blanchard, Brusly, La., assignor to HR Textron Inc., Valencia, Calif.

Filed Apr. 11, 1980, Ser. No. 139,307
Int. Cl.³ F16K *11/06, 3/18*
U.S. Cl. 137—625.48 **15 Claims**

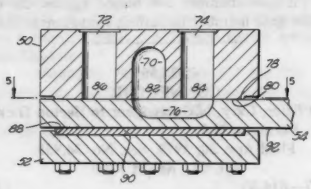
1. A slide plate diverter valve for use with high viscosity fluids at temperatures in excess of about 400 degrees Fahrenheit and pressures in excess of about 1000 PSI comprising:

a unitary manifold block capable of withstanding temperatures in excess of about 400 degrees Fahrenheit and defining fluid inlet and outlet flow areas and having a first sealing face, said flow areas defining inlet and outlet ports at said first sealing face;

a unitary metallic slide plate capable of withstanding temperatures in excess of about 400 degrees Fahrenheit and defining a fluid flow passageway in one surface thereof for receiving the fluid flowing through said inlet flow area

and diverting the same to said outlet flow to provide a continuous flow path for said fluid having no isolated regions subject to stagnation, said one surface having a second sealing face;

a metal backing plate capable of withstanding temperatures in excess of about 400 degrees Fahrenheit and with said



slide plate sandwiched between said backing plate and said manifold block; and

means for applying a clamping pressure to said manifold block and said backing plate to urge said first and second sealing faces into metal-to-metal sealing engagement with sufficient force to preclude leakage of said fluid therebetween at pressures in excess of about 1000 PSI.

4,334,553

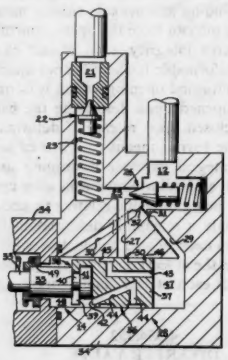
RESETTABLE VALVE SPOOL WITH KICK-OUT MEMBER

Thomas J. Hajek, II, Lockport, and Larry W. Lorimor, Joliet, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 939,526, Sep. 5, 1978, abandoned. This application Apr. 7, 1980, Ser. No. 137,652

Int. Cl.³ F15B *13/042*; F16K *31/143*

U.S. Cl. 137—625.66 **1 Claim**



1. In combination, a resettable valve spool (33) including a manual actuation means, said resettable spool valve (33) being an inlet and exhaust valve having two control positions and a neutral position and sequentially movable to various linear positions to control fluid flow therethrough,

a valve kick-out member (36) having pressure responsive first and second ends,

attachment means (38) for detachably connecting said valve kick-out member (36) to an end of said valve spool (33) by relative lateral movement between said kick-out member (3*b*) and said valve spool (33),

first passage means (43) for communicating fluid from an inlet (45) thereof to the first end of said valve kick-out member (36),

second passage means (44) for communicating fluid from an inlet (46) thereof to the second end of said valve kick-out member (36), each of said first (43) and second (44) passage means being formed in said kick-out member (36),

an annular land (50) formed on the periphery of said kick-out member (36) to longitudinally separate the inlets (45,46) to said first (43) and second (44) passage means, and

a pair of longitudinally-spaced annular first and second grooves formed on said kick-out member (36) on either side of said land (50) to define the inlets (45,46) to the first (43) and second (44) passage means, respectively, said first (43) and second (44) passage means terminating at said first and second grooves, respectively, on opposite sides of said land (50).

4,334,554

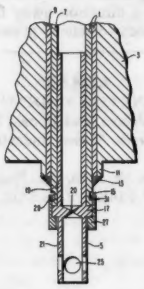
REMOVABLE ORIFICE

Walter R. Geiger, Madison Borough, and Boyd A. Kessinger, Murrysville Borough, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 20, 1980, Ser. No. 180,051

Int. Cl.³ F15D *1/02*

U.S. Cl. 138—44 **5 Claims**



1. A removable orifice for a tube having a circumferential groove in its outer surface, said orifice comprising:

an orifice block having an orifice disposed therein and having an outer diameter generally equal to the outer diameter of the tube surface;

a skirt extending from one side of the orifice block and fitting inside said tube; and

a continuous sleeve having a counterbore which fits over the outer diameter of said orifice block, the counterbore end of said sleeve extending beyond the outer edge of said circumferential groove and said sleeve being bent at a plurality of locations so as to engage said groove, said bent positions being the only fasteners utilized to hold said orifice adjacent said tube, whereby said sleeve and orifice may be quickly removed by pulling on the orifice.

4,334,555

CURLING EYE HEDDLE

Carolyn S. Hoagland, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Aug. 8, 1980, Ser. No. 176,352

Int. Cl.³ D03C *9/04*

U.S. Cl. 139—95 **10 Claims**

1. A curling eye heddle for use on a weaving loom with spaced apart upper and lower heddle frames, said heddle comprising:

an elongated member having opposite longitudinal end loops for surrounding said upper and lower heddle frames; said end loops being in a common vertical plane;

a curling eye formed in said heddle intermediate said opposite ends thereof, said curling eye comprising a helically coiled member having a horizontal axial central axis extending obliquely with respect to said common vertical plane of said loops; and further having opposite sides;

guard means located adjacent said curling eye, said guard means having opposite side members extending laterally

outwardly beyond the opposite sides of said curling eye to prevent said wire end from catching or snagging adjacent warp threads.

4,334,556

WOVEN SLIDE FASTENER STRINGER

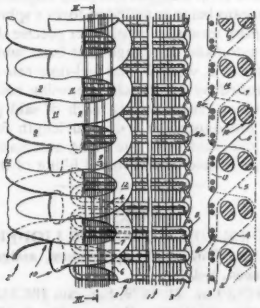
Alfons Fröhlich, and Karl Griessbaum, both of Essen, Fed. Rep. of Germany, assignors to Opti Patent-, Forschungs- und Fabrikations-AG, Riedern-Allmeind, Switzerland

Filed Apr. 25, 1979, Ser. No. 33,224

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1978, 2818508; Apr. 27, 1978, 2818509; Apr. 27, 1978, 2818838

Int. Cl.³ D03D *1/00*

U.S. Cl. 139—384 B **4 Claims**



1. A slide-fastener stringer half comprising a woven tape and a continuous monofilament coupling element interwoven with said tape, said tape being formed with a ground weft comprised of a plurality of double-pick weft insertions extending transversely of said tape and interlaced with warp yarns, said coupling element being formed of double-pick weft insertions and is provided with a multiplicity of coupling members each having a head overhanging an edge of said tape and a pair of shanks extending inwardly from said edge, said warp yarns including connective warp threads interlaced with the double-pick weft insertions of said ground weft and with the double-pick weft insertions of said coupling element inwardly of said edge of said tape such that the warp threads pass over and under said double-pick weft insertions in a staggered pattern and each of said warp threads passes in succession over a double-pick weft insertion of said coupling element, under two successive double-pick weft insertions of the ground weft, and between the next two double-pick weft insertions of the ground weft and a double-pick weft insertion of said coupling element before entering a pattern repeat, a respective double-pick weft insertion underlying each double-pick weft insertion of said coupling element, and a further double-pick weft insertion of said ground weft being disposed between successive double-pick weft insertions of said coupling element.

4,334,557

CANNING UTENSIL

Kathryn H. YaSenka, 1409 Elk St., Franklin, Pa. 16323

Filed May 5, 1980, Ser. No. 146,296

Int. Cl.³ B65B *3/04*

U.S. Cl. 141—98 **10 Claims**

1. A canning utensil for use in filling canning jars with food product wherein said utensil serves the dual function of severing the food product and funneling the severed food product into a canning jar, said canning utensil comprising:

(a) a funnel-like body structure having an upper portion with atop opening and a lower portion with a bottom opening adapted to be inserted into the mouth of a canning jar for restably supporting said utensil on said jar, said top opening being of a larger diameter than said bottom opening and said body structure being so shaped to guide food product down from the top opening, through said bottom opening, and into the canning jar; and

(b) severing means extending across said upper portion adjacent said top opening for severing the food product into pieces upon insertion of the food product against said severing means whereby the severed food product is then directed down through said body structure and into said canning jar.

4,334,558

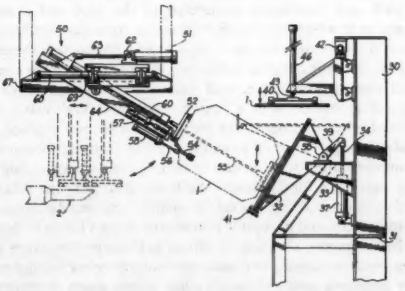
VALVE BAG PLACER

Will G. Durant, 148 N. C St., Tustin, Calif. 92680

Filed Jun. 3, 1980, Ser. No. 155,920

Int. Cl.³ B65B *43/18, 43/30*

U.S. Cl. 141—114 **14 Claims**



1. An improved bag placer apparatus for placing a bag or the like having a valve at an end thereof upon a filler spout through which the bag is to be filled with a flowable material, the apparatus of the type having means for withdrawing one such bag at a time from a plurality of such bags and having

means for gripping the valve end of the withdrawn bag for opening the valve prior to placement thereof on the filler spout; the improvement comprising:

a bag registration apparatus for receiving each said one bag in a substantially horizontal position from said withdrawing means and for presenting each said one bag to said gripping means, and having means for automatically registering each said one bag for location of said valve end in precise position and alignment relative to said gripping means,

wherein said means for automatically registering comprises:

means for utilizing the force of gravity to align a first edge of said bag in a first dimension, and

means for forceably aligning a second edge of said bag in a second dimension, said first and second edges of said bag being perpendicular to one another and lying in the plane of said bag, and

wherein said means for utilizing the force of gravity comprises:

a tiltable table adapted to receive said bag in a sustantially horizontal position and to tilt at an angle with respect to said horizontal position, said angle being sufficient to cause said bag to slide in the direction of said tilt, and

said tiltable table having an indexing means mounted to the top surface of said table for receiving the edge of said sliding bag in substantial alignment therewith.

4,334,559

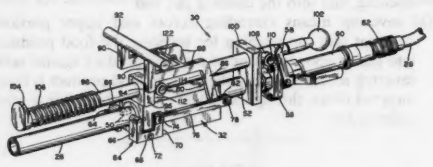
PIPE COUPLING

Larry D. Deem, 8619 Furnace Rd., Vermilion, Ohio 44089

Filed Jun. 13, 1980, Ser. No. 159,218

Int. Cl.[3] B65B *3/04*

U.S. Cl. 141—346 **20 Claims**



1. In combination, a pipe for supplying fluid, a first end of said pipe being subject to burning off, means for moving the pipe longitudinally along a predetermined path, a coupling comprising a housing for receiving a second end of said pipe, means carried by the housing for connecting said housing to said pipe, said connecting means having a first position in which said housing is connected to the pipe and a second position in which the pipe is releaseable from said housing, said housing moving with said pipe when connected thereto, a valve, operating means connected with said valve for opening and closing said valve, said valve being opened when said operating means is in a first position and said valve being closed when said operating means is in a second position, said valve being connected to and moveable with said housing and communicating with an end of said housing opposite said pipe for supplying fluid through the housing to the pipe when the valve is opened, an operating member moveably carried by said housing and moveable rearwardly from a forward position when engaging a stationary object as the pipe is moving along the predetermined path, said operating member having means for engaging said valve-operating means when moving rearwardly to move said operating means from the first position to the second position to close said valve, and said member having additional means for engaging said connecting means for moving said connecting means from the first position to the second position for releasing said pipe from said housing when said valve is closed.

4,334,560

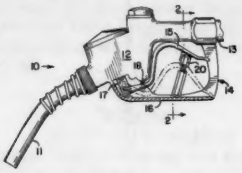
LOCKING BRACE FOR GASOLINE DISPENSING NOZZLES

Frank J. Lockwood, 7011 W. Archer Ave., Chicago, Ill. 60638

Filed Jun. 12, 1978, Ser. No. 914,733

Int. Cl.[3] B65B *3/04*

U.S. Cl. 141—392 **7 Claims**



1. An adjustable and portable prop means to be carried by a user for use with a fuel dispensing nozzle, said nozzle having a nozzle lever and lever guard, said nozzle lever being movable from a normally closed position to an open position for dispensing fuel, said portable prop means allowing the automatic control of the fuel-flow rate and the automatic and precise shut-off of the nozzle to thereby allow the unattended filling of a fuel tank and assure the automatic shut-off of said fuel flow without spillage when said fuel tank is full, said portable prop means being capable of insertion between said nozzle lever and said lever guard of said nozzle for exerting a continuous force against each of said nozzle lever and said lever guard in said open position, said portable prop means comprising opposing first and second portions of a non-sparking material, said first and second portions being connected by an adjusting means for varying the length of said portable prop means from a fully extended first position to a closed second position, and retaining said portable prop means at a desired length, opposing ends of said prop means being rounded to form a spherical segment to make said prop means responsive for precise shut-off of said fuel flow by automatic disengagement from said nozzle lever and said lever guard, whereby the fuel-flow rate of said nozzle may be controlled by biasing said opposing rounded ends of said portable prop means against each of said portable prop means being preadjusted to a desired length for effecting a desired flow rate, said flow rate being automatically shut-off by the response of said nozzle to the filling of the fuel tank.

4,334,561

HEAD PIECE FOR A TANK FOR LIQUEFIED GAS

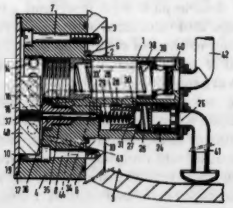
Andre S. J. Van Coillie, Uccle, Belgium, assignor to Valico P.v.b.a., Tienen, Belgium

Filed Dec. 21, 1979, Ser. No. 106,242

Claims priority, application Belgium, Jan. 3, 1979, 192745

Int. Cl.[3] B65B *3/04*

U.S. Cl. 141—392 **8 Claims**



1. A head piece for a tank for liquefied gas adapted to be mounted in the luggage compartment of a vehicle between an inlet conduit and an outlet conduit, and comprising an overpressure safety valve, a filling valve with one-way protection,

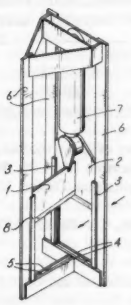
a delivery valve with a flow limiter, and a level meter, said valves functioning generally independently of each other, characterized in that said valves are integrated in the head piece in a compact and space-saving array, which head piece fits at least partly in an opening provided in said tank, said head piece comprising at least a first compartment communicating through at least one tube with the atmosphere outside said luggage compartment, the arrangement being such that the over-pressure safety valve opens into said first compartment, while any leakage from the inlet conduit is collected in said tube, and leakage in the outlet conduit is collected in a tube provided around said outlet conduit, said tube being in turn in communication with said first compartment whereby any leakage from said first compartment in vented to atmosphere.

4,334,562

APPARATUS FOR CUTTING AND SPLITTING LOGS

Per Granlund, Moelv, Norway, assignor to A/S Moelven Brug, Moelv, Norway

Filed Dec. 11, 1980, Ser. No. 215,368
Claims priority, application Norway, Jan. 25, 1980, 800177
Int. Cl.³ B27L *7/00*
U.S. Cl. 144—193 A **3 Claims**



1. A combined log cutting and splitting apparatus for cutting and splitting firewood comprising a T-shaped foundation base member, a plurality of upstanding support posts attached to and extending from said base member, bracing members attached to the tops of said posts to interconnect them to form a rigid frame, a hydraulic piston-cylinder power drive member supported on said rigid frame adjacent to and depending from the top thereof so that said cylinder is disposed substantially between said posts, a cross-cutting knife attached to the lower end of said piston-cylinder member to be reciprocated substantially vertically thereby to cross-cut a log placed on said base member in the area between said posts, a splitting knife attached to the lower end of said piston-cylinder member, and to said cross-cutting knife to form a substantially T-shaped configuration therewith and to split the cut-off section of the log substantially simultaneously with the cross-cutting, said cross-cutting knife being downwardly displaced with respect to said splitting knife so that cross-cutting begins before splitting and said cross-cutting knife retains said log in position during splitting, and guide means on at least one of said posts engaging the adjacent side edge of said cross-cutting knife.

4,334,563

SWINGABLE IMPACT TOOL

Joseph N. Epel, Southfield; Robert E. Wilkinson, Birmingham; Probir K. Guha, Mt. Clemens, all of Mich., and Albert S. Crandon, Jr., Pittsburgh, Pa., assignors to The Budd Company, Troy, Mich.

Filed Jul. 21, 1980, Ser. No. 170,418
Int. Cl.³ B26B *23/00*
U.S. Cl. 145—2 R **10 Claims**

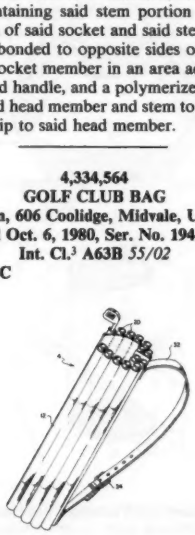
1. A swinging impact tool comprising: a metallic head member forming a handle receiving socket, a handle including the stem portion at one end, said stem portion being supported in the socket of said head member, said handle including a core member extending longitudinally the full length of said handle, said core member having a substantially uniform I-shaped cross section having a web extending in the plane of swinging movement of said tool and being formed of a polymerized thermosetting resinuous binder reinforced with fiberglass filaments, a resilient molded cover extending from said head and enveloping said core member, said cover being disposed symmetrically relative to said core member, said socket of said head member containing said stem portion to form a space between the walls of said socket and said stem, a pair of reinforcing members bonded to opposite sides of said web to extend within said socket member in an area adjacent said head for reinforcing said handle, and a polymerized resin filling the space between said head member and stem to bond said handle in fixed relationship to said head member.

4,334,564

GOLF CLUB BAG

Charles R. Clayton, 606 Coolidge, Midvale, Utah 84070

Filed Oct. 6, 1980, Ser. No. 194,618
Int. Cl.³ A63B *55/02*
U.S. Cl. 150—1.5 C **8 Claims**



1. A golf bag comprising:

a plurality of generally elongate receptacles, each of a dimension sufficient to receive the handle of a golf club,

means flexibly joining the receptacles together in a first side-by-side array and generally in a row,

an additional plurality of generally elongate receptacles, fewer in number than the first-mentioned plurality or receptacles, each of a dimension sufficient to receive the handle of a golf club,

means flexibly joining the additional receptacles together in a second generally side-by-side array and generally in a row,

means connecting the second array of receptacles at a cen-

tral location thereof and in common orientation with the first array of receptacles and at a central location thereof in a generally back-to-back relationship so that the first array of receptacles may substantially encircle the second array, and

handle means coupled centrally to said first array of receptacles or flexible joining means to enable holding the two arrays of receptacles.

4,334,565

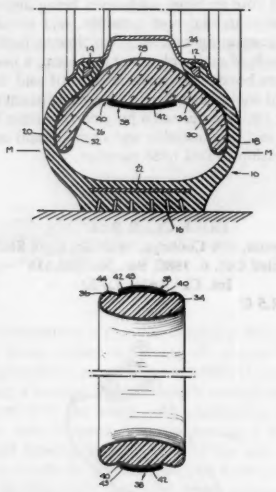
TIRE INSERT

Leonard S. Stokes, Mt. Clemens, Mich., assignor to Uniroyal, Inc., New York, N.Y.

Continuation of Ser. No. 884,656, Mar. 8, 1978, abandoned. This application Jun. 25, 1980, Ser. No. 162,972

Int. Cl.³ B60C *17/04*

U.S. Cl. 152—158 **9 Claims**



1. A toroidal insert for a tubeless, pnuematic tire consisting of:

a preformed, torus-like cellular or foam core having a central axis, a radially inner surface portion with respect to said central axis, a radially outer surface portion with respect to said central axis;

tire cord radially wound around said core; and

at least one belt-like load bearing member having tire cord therein, said belt-like member being wound around the outer diametrical surface portion of said torus-like core such that the insert, in cross-section, has a relatively thick, substantially oval middle portion and a pair of relatively thin leg portions each extending from a respective side of the substantially oval middle portion, said belt-like member surrounding said substantially oval middle portion but not extending into said leg portions.

4,334,566

TIRE TRACTION DEVICE

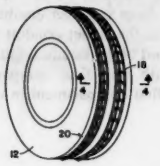
Leo Augustine, 235 The Donway West, Apt. 3, Don Mills, Ontario, Canada (M3B 2V7)

Filed Sep. 4, 1980, Ser. No. 184,061

Claims priority, application Canada, May 4, 1977, 277678

Int. Cl.³ B60C *27/00*

U.S. Cl. 152—208 **1 Claim**



1. A tire traction device comprising at least two continuous circumferentially extending tread groove bead members adapted to nest within corresponding circumferential tread grooves of a vehicle tire; a plurality of circumferentially spaced transverse traction elements of triangular cross-section integrally connected to said bead members; said traction elements being configured and dimensioned to overlie the tread of the tire and to project outwardly therefrom, and a continuous circumferentially extending traction element of triangular cross-section positioned between said bead members and connected thereto by said transverse traction elements such that said traction elements are disposed with an apex of said triangle directed outwardly, circumferentially spaced pairs of said transverse traction elements being connected between said bead members and said continuous circumferentially extending traction element in a V-shape both laterally and vertically.

4,334,567

TIRES

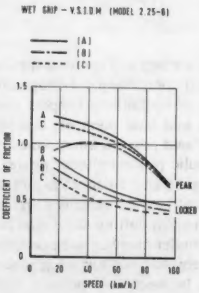
Robert Bond, Lichfield, England, assignor to Dunlop Limited, London, England

Continuation-in-part of Ser. No. 949,276, Oct. 6, 1978, abandoned. This application Mar. 26, 1980, Ser. No. 134,091

Claims priority, application United Kingdom, Oct. 8, 1977, 41979/77

Int. Cl.³ B60C *11/00*

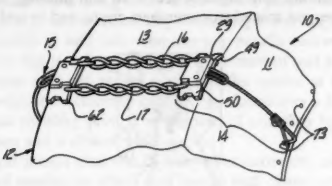
U.S. Cl. 152—209 R **12 Claims**



1. A tire comprising sidewalls, beads, and a tread, whose tread composition having improved wet grip and rolling resistance is formed of an elastomer composition containing as the elastomer a styrene-butadiene copolymer or a styrene-isoprene copolymer, the unvulcanized polymer forming the elastomer having a glass transition temperature of above about minus 50° C. to about minus 20° C., and said vulcanized tread composi-

tion having a rebound resilience of about 55% to about 95% measured using the Dunlop Pendulum at 50° C., according to B.S. 903/1950.

4,334,568
TIRE CHAIN
Walter H. Thorpe, 9403 Somerset, Detroit, Mich. 48224
Filed Nov. 28, 1980, Ser. No. 211,065
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—218 **32 Claims**

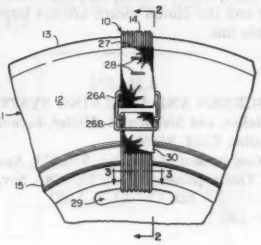


1. An improved tire chain for use on automotive-type tires having an inner sidewall, an outer sidewall, and a tread portion, and being mounted on a rim, said improved tire chain including at least one inner gripper portion having a flexible spring-like inner wire form complementary in shape to said inner sidewall, at least one outer gripper portion having a flexible spring-like outer wire form complementary in shape to said outer sidewall and being adapted to be mounted in a 180 degree opposed relationship to said inner wire form, and one or more flexible chains fixedly mounted between said outer gripper portion and said inner gripper portion, said flexible chains being the only connection between said inner gripper portion and said outer gripper portion.

16. In combination with an automobile tire of the type having an inner and an outer sidewall with a tread portion and a rim, an improved tire chain including an inner gripper portion having a flexible spring-like inner wire form complementary in shape to said inner sidewall, an outer gripper portion including a flexible spring-like outer wire form complementary in shape to said outer sidewall, one or more flexible chains fixedly mounted between said outer gripper portion and said inner gripper portion, said flexible chains being the only connection between said inner gripper portion and said outer gripper portion, each of said wire forms including a pin portion, and a plurality of indentations provided on said inner and said outer sidewalls of said tire proximate the rim thereof and adapted to receive said pin portions of said inner and outer wire forms.

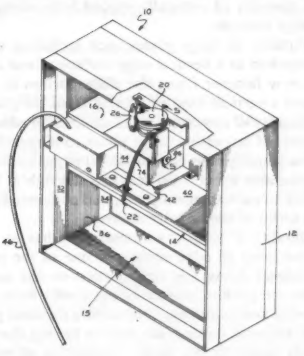
4,334,569
TRACTION ASSEMBLY
Richard J. Jacob, Dayton, Ohio; Jack D. White, Springfield, and Kenneth D. Richmond, Nixa both of Mo., assignors to Dayco Corporation, Dayton, Ohio
Continuation-in-part of Ser. No. 63,878, Aug. 3, 1979, abandoned. This application Oct. 16, 1980, Ser. No. 197,421
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—221 **2 Claims**

1. A traction device adapted to be mounted on a tire mounted on a wheel, said tire having a pair of opposed side walls and a peripheral road-contacting outer circumferential surface, which comprises a single strap having a width greater than its thickness extending around said tire and through an aperture in said wheel, and means for demountably connecting one end portion of said strap to the opposite end portion of said strap; said strap being composed of a one piece unitary body having an inner tire-contacting surface and an outer road-contacting surface, said body comprising a strength section having inner and outer surfaces, a ribbed section adjacent said outer surface, and a fabric layer adjacent said inner surface and forming said tire-contacting surface; said strength section primarily composed of elastomeric material and having a single layer of reinforcing cords embedded therein and extending generally in the lengthwise direction of and for the full length of said strap; said ribbed section defined by a plurality of alternating ribs and recesses extending generally in the lengthwise



direction of and for the full length of said strap, said ribs forming said outer road-contacting surface and primarily composed of elastomeric material and having a plurality of discrete fibers dispersed homogeneously therein, at least 50 percent of said fibers being oriented at 90 degrees to the direction of length of said strap.

4,334,570
FIRE AND SMOKE DAMPER
Rudolph J. Adams, Chicopee, Mass., assignor to Reed National Corp., Westfield, Mass.
Filed Sep. 22, 1980, Ser. No. 189,603
Int. Cl.³ E05F *15/20*
U.S. Cl. 160—1 **10 Claims**



1. A fire and smoke damper of the type mounted within an air duct and movable from an open position which defines a duct opening to a closed position wherein the duct opening is closed, comprising:

(a) a pulley;

(b) a motor adapted to rotate the pulley;

(c) clutch means for transmitting torque from the motor to the pulley to rotate the pulley, said means including a coil spring surrounding a portion of the pulley;

(d) a curtain movable from a first position wherein the duct opening is closed to a raised position wherein the duct opening is open;

(e) cable means for raising and lowering the curtain to open and close the duct opening, said cable means including a cable windable about the pulley;

(f) primary stop means including a stationary member and a fusible link interconnecting the member and the clutch

means to restrict a portion of the spring and permit the spring to wrap down on said portion of the pulley to transmit torque from the motor to the pulley to raise the curtain; and

(g) secondary stop means for restricting the spring portion to permit the spring to wrap down on said pulley portion and transmit torque to raise the curtain when the stationary member and the clutch means are not interconnected by the fusible link.

4,334,571

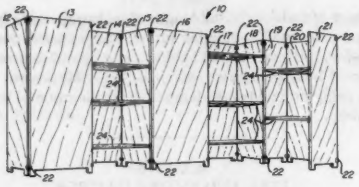
SCREEN AND SHELVING SYSTEM

Patricia S. Heller, and Stephen M. Heller, both of 2300 Bridgeway, Sausalito, Calif. 94965

Continuation-in-part of Ser. No. 935,224, Aug. 21, 1978, abandoned. This application May 19, 1980, Ser. No. 151,067

Int. Cl.³ A47G *5/00*

U.S. Cl. 160—135 **4 Claims**



1. A room dividing system comprising:

a plurality of generally planar vertical panels, certain of said panels having a width equal to a fixed dimension A and the remainder of said panels having a width equal to a fixed dimension B, B being less than A, said panels having a plurality of vertically spaced holes along their vertical edge surfaces;

a plurality of hinge plates each including a plate portion attached to a vertical edge surface of one of the panels, a screw fastener fixing the plate portion to one said hole, and a vertical loop projecting from the plate portion;

a plurality of connector links connecting adjacent loop portions of respective hinge plates to hingeably interconnect the planar panels at their lateral edges so that each panel is pivotable about a vertical axis through at least 180° relative to each adjacent panel, said connected panels forming a series of rectangular alcoves;

a plurality of support elements each having a first portion overlying an edge surface of one of the panels, a screw fastener fixing said first portion to one said hole, and a second portion projecting outwardly from the face of the panel and including an upwardly directed projection; and

a plurality of rectangular shelves having dimensions generally equal to the inside dimensions of said alcoves for mounting therein, said shelves each including underlying recesses proximate their corners and engaged by the upwardly directed projections so that the shelves provide structural rigidity to the panels and prevent collapse of the system.

4,334,572

VENETIAN BLIND CONSTRUCTION

Paul Frei, Elgg, Switzerland, assignor to Griesser AG, Switzerland

Filed Nov. 26, 1980, Ser. No. 210,625

Claims priority, application Switzerland, Jan. 24, 1980, 559/80

Int. Cl.³ E06B *9/30*

U.S. Cl. 160—170 **10 Claims**

1. A venetian blind construction comprising:

a housing;

drive shaft means rotatably mounted in said housing;

a lifting strap connected to said drive shaft means and windable thereon with rotation of said drive shaft means;

a bottom rail connected to said lifting strap which is lifted with winding of said lifting strap on said drive shaft means;

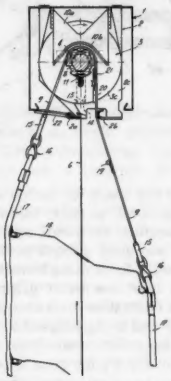
at least one setting strap in coupling contact with and wrapped over said drive shaft means having ends connected to said bottom rail;

at least one slat connected to said setting strap on opposite sides of said drive shaft means;

said setting strap being moved by rotation of said drive shaft means to tilt said slat;

first and second stop lugs connected to said housing;

first and second spaced stop members connected to said setting strap;



said first stop member abutting said first stop lug with rotation of said drive shaft means to wind and lift said lifting strap, to move said setting strap and bring said slat into a first position;

said second stop member abutting said second stop lug with rotation of said drive shaft means to unwind and lower said lifting strap, to move said setting strap and bring said slat into a second position; and

stop release means connected to said drive shaft means, operable with a full unwinding of said lifting strap to release said second stop member from said second stop lug to permit further movement of said setting member to bring said slat into a third position.

4,334,573

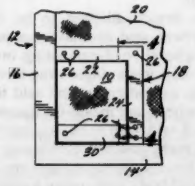
PET ACCESS DOOR KIT AND METHOD OF INSTALLATION

La Vona R. Hackman, and James M. Hackman, both of 7816 Topia St., Long Beach, Calif. 90808

Filed Aug. 31, 1979, Ser. No. 71,754

Int. Cl.³ E06B *7/28*

U.S. Cl. 160—180 **2 Claims**



1. A screen door including a pet access door, said screen door comprising:

a finely apertured screen;
a horizontal lower rail;
a vertical stile intersecting said rail;
a pair of L-shape members engaged upon opposite sides of said screen in confronting relation, each of said members having a rail portion abutting at its free end against said stile without attachment thereto, and a stile portion abutting at its free end against said rail without attachment thereto;
means attaching said pair of members together, said screen being vertically cut along a line adjacent and parallel to said stile and along a line adjacent and parallel to said stile portion, and horizontally cut along a line adjacent and parallel to said rail, whereby a generally rectangular access flap is defined in which the screen of said access flap forms said pet access door and the screen at the upper horizontal extremity of said flap constitutes a hinge portion enabling pivotal movement of said flap between an open and a closed position; and
weight means attached to the lower extremity of said flap and tending to orient said flap in said closed position.

4,334,574

COOLING METHOD

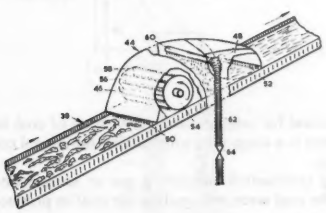
Andrew L. Rennie, Stirling, and Alexander Davis, Hamilton, both of Scotland, assignors to BOC Limited, London, England

Continuation of Ser. No. 959,408, Nov. 9, 1978, abandoned. This application Jun. 3, 1980, Ser. No. 155,911

Claims priority, application United Kingdom, Nov. 9, 1977, 46715/77; Jul. 14, 1978, 29888/78

Int. Cl.³ B22C *5/08*

U.S. Cl. 164—4.1 **5 Claims**



1. A method for making moulds comprising the steps of obtaining sand from used moulds at a temperature above that temperature that is desired for making new moulds; passing said sand to a mould station where moulds are formed therefrom; spraying liquefied gas selected from the group consisting of liquid nitrogen, liquid argon and liquid carbon dioxide into direct contact with said sand to thereby cool said sand as it is passed to the mould station; monitoring the temperature of said sand as it is passed to said mould station; and controlling the flow of said liquefied gas in response to said monitored temperature to establish the temperature of said sand below a predetermined value prior to making moulds from the cooled sand.

5. In the manufacture of metal casting moulds from a composition of preselected water content comprising foundry sand recovered from a prior casting operation and which is at an undesirably high temperature from heat absorbed by the mould from the hot metal of a prior casting operation the improvement which comprises removing heat from the sand by direct exchange of heat with a liquefied gas selected from the group consisting of liquid nitrogen, liquid argon and liquid carbon dioxide sprayed onto the sand in an amount controlled by a sensed temperature of the sand to thereby obtain the desired sand temperature for the formation of metal casting moulds without altering the water content thereof.

4,334,575

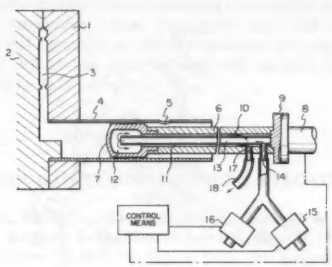
METHOD FOR COOLING A PLUNGER TIP IN A DIE CASTING MACHINE OF THE COLD CHAMBER TYPE AND APPARATUS THEREFOR

Isao Miki, and Tsutomu Nagi, both of Shimizu, Japan, assignors to Nippon Light Metal Co., Ltd., Tokyo, Japan

Filed Mar. 18, 1980, Ser. No. 131,553

Int. Cl.³ B22D *17/20*

U.S. Cl. 164—113 **14 Claims**



1. Method of cooling a plunger tip in a die casting machine of the cold chamber type including the steps of supplying a stream of cooling fluid to a hollow space formed in the tip for a predetermined time period, wherein the improvement comprises supplying said stream of cooling fluid in timed relationship to the actuation of the tip during the die casting operation so as to effect forced cooling of the tip, and completely purging all of said cooling fluid from said hollow space by supplying a stream of pressurized gas to the hollow space in the tip for a predetermined time period immediately after the termination of the supply of the stream of the cooling fluid in the hollow space in the tip so that said cooling fluid may uniformly cool the tip.

4,334,576

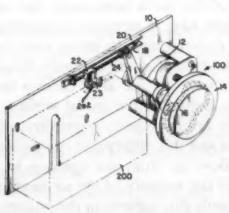
THERMOSTAT CONTROL

Linus C. Fuchek, 4019 93rd Ave., Southeast, Mercer Island, Wash. 98040

Filed Jun. 24, 1981, Ser. No. 276,962

Int. Cl.³ F25B *29/00*

U.S. Cl. 165—12 **13 Claims**



1. A thermostat control for a heat pump thermostat which allows the heat pump to change its temperature setting automatically and systematically minimizing the use of resistive heating with the heat pump as a backup to accomplish the temperature change, the heat pump thermostat control comprising:
(a) a clock motor;
(b) a cam operatively associated with the motor to turn with time as the motor turns;
(c) means associated with the cam to move the heat pump thermostat through a desired temperature differential at a rate less than that rate at which resistive heating will be used

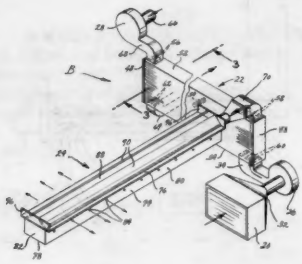
as a backup to aid the change unless the heat pump is operating at full capacity.

4,334,577

VENTILATING SYSTEM FOR LIVESTOCK HOUSES

Robert M. George, 1208 W. Worley St., Columbia, Mo. 65201

Filed Jan. 11, 1980, Ser. No. 111,292
Int. Cl.³ F24H *3/02*
U.S. Cl. 165—54 **8 Claims**



1. In combination with a livestock house having a ceiling, a living area for livestock beneath the ceiling, and fans for exhausting air from the living area, an improved ventilation system comprising: an elongated opening in the ceiling; a horizontal surface directly below the opening, and a rigid and generally flat baffle located adjacent to the opening and extended downwardly toward the horizontal surface at an oblique angle, the baffle being hinged along its upper edge with respect to the ceiling so that it can swing outwardly from a closed position, in which its lower edge is against the horizontal surface, to open positions, in which its lower edge is elevated above the horizontal surface, the baffle, when in its closed position, isolating the opening from the living area so that warm moist air in the living area will not rise through the opening and, when in its open position, permitting air from the opening to escape into the living area through the space between the lower edge and the horizontal surface, the material of the baffle being for the most part rigid and light weight and also being distributed such that normal movement of the baffle does not significantly change the length of the moment arm created by the weight of the baffle acting about the hinge axis, the inclination of the baffle being such that the lower edge is ahead of the upper edge in terms of the direction of the air that flows from the opening into the living area, the lower edge of the baffle further being located inwardly from the edge of the horizontal surface so that air after passing beyond the lower edge still flows along the horizontal surface, whereby when the exhaust fans are energized, a pressure differential occurs across the baffle and this differential causes the baffle to swing upwardly to allow air from the opening to escape into the living area, with the velocity of the air having relatively little variation over wide fluctuations in the volume of the air flow.

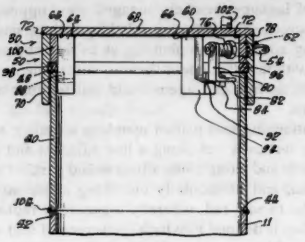
4,334,578

WELL CASING CLOSURE

Warren W. Labrum, P.O. Box 543, Dayton, Nev. 89403

Filed May 12, 1980, Ser. No. 149,017
Int. Cl.³ B65D *55/14*; E21B *33/02*
U.S. Cl. 166—75 R **10 Claims**

1. A well casing closure to close the open end of a well casing which comprises: an elongated cylidrical member of a larger interior diameter than the exterior diameter of a well casing and having a cover plate means closing one end of said cylindrical member; means associated with said well casing to receive means associated with said elongated cylindrical member to hold said elongated cylindrical member in place upon said well casing, and securing means to retain said elongated



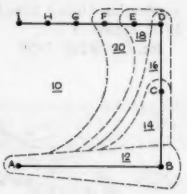
cylindrical member in place upon said well casing in such a manner so as not to perforate said well casing.

4,334,579

METHOD FOR GASIFICATION OF DEEP, THIN COAL SEAMS

David W. Gregg, Moraga, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 29, 1980, Ser. No. 182,561
Int. Cl.³ E21B *43/243, 43/30*; E21C *43/00*
U.S. Cl. 166—256 **8 Claims**



1. A method for underground gasification of coal in a coal removal area in a deep, thin, substantially horizontal coal seam comprising:

injecting combustion supporting gas at an injection point into the coal seam and igniting the coal to produce product gases;

causing and controlling bending subsidence of overburden to sweep across the coal removal area adjacent to unprocessed coal by combustion of the coal by sequentially moving the injection point for the combustion supporting gas around the coal removal area away from a recovery well to confine gas flow to a region close to unprocessed coal between the unprocessed coal and the subsided overburden; and

removing the product gases.

4,334,580

CONTINUOUS BOREHOLE FORMED HORIZONTALLY THROUGH A HYDROCARBON PRODUCING FORMATION

Roy R. Vann, Houston, Tex., assignor to Geo Vann, Inc., Houston, Tex.

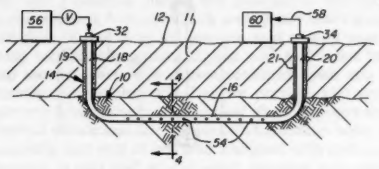
Filed Mar. 24, 1980, Ser. No. 132,765
Int. Cl.³ E21B *7/04, 43/24, 43/117, 43/119*
U.S. Cl. 166—268 **7 Claims**

3. Method of producing viscous hydrocarbons from a pay zone located in a thin strata, comprising the steps of:

(1) forming a borehole with a drill bit which is attached to the end of a drill string by extending the borehole down into the ground to form a borehole inlet; and, turning the borehole towards the horizontal to form a substantially

horizontal borehole portion which extends through the pay zone; and, turning the borehole up towards the surface of the ground to form a borehole outlet;

(2) attaching a casing string to the end of the drill string at said borehole outlet; rotating the casing with the drill string while pulling the drill string back through the borehole so that the casing string extends from said outlet to said inlet; and circulating drilling fluid down through the



drill string and into the borehole annulus while the casing is being pulled into the borehole to thereby reduce the frictional forces between the casing and the borehole wall;

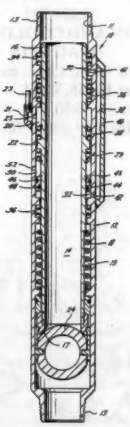
(3) removing the end of the drill string from the casing string; forming a multiplicity of flow paths which extend from the pay zone, through the wall of the casing, and into the interior of the casing; and, producing the well through one of said inlet or outlet.

4,334,581

BALANCED AREA SAFETY VALVE

Henry P. Arendt, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Sep. 12, 1980, Ser. No. 186,587
Int. Cl.³ E21B *34/10*
U.S. Cl. 166—324 **10 Claims**



1. A subsurface safety valve comprising

a tubular housing having a longitudinal bore extending therethrough defining a flow path,

closure means disposed in said bore for controlling flow through said flow path,

operator means longitudinally movable with respect to said tubular housing for moving said closure means and having a first position wherein said closure means closes said flow path and having a second position wherein said closure means opens said flow path,

a sealed variable capacity pressure chamber for receiving control pressure fluid from a source exterior to said housing,

control fluid pressure responsive means for moving said operator means from said first position to said second position when affected by fluid pressurized above a selected value,

biasing means for urging said operator means to move to its first position,

annular areas, between said operator means and said housing sealed from exposure to well pressures in said bore, said annular areas being positioned with respect to said variable capacity pressure chamber so as to intercept well pressure, in said bore, in the event of said annular area seal failure,

fluid communication means connecting said annular areas, and

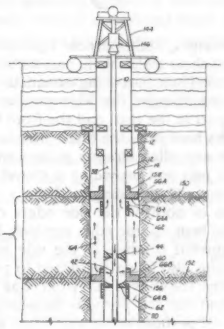
pressure responsive means engageable with said operator means and exposable to well bore pressure entering at least one of said annular areas to assist said operator means in moving to its first position.

4,334,582

METHOD OF CEMENTING FROM A FLOATING VESSEL

Eugene E. Baker, and Ernest E. Carter, Jr., both of Duncan, Okla., assignors to Halliburton Services, Duncan, Okla.

Division of Ser. No. 958,706, Nov. 8, 1978. This application Aug. 4, 1980, Ser. No. 174,559
Int. Cl.³ E21B *33/124, 33/16, 43/01*
U.S. Cl. 166—355 **8 Claims**



1. A method of cementing the annular cavity between a well casing and a well borehole, from a floating vessel, wherein the casing contains a casing valve, the method comprising the steps of:

running a drill string into the casing, said drill string including an opening positioner for opening said casing valves, an anchor means, and an isolation packer located below said opening positioner;

engaging said opening positioner with said casing valve;

lifting said drill string to open said casing valve;

positioning said drill string to align said isolation packer with said casing valve, so that an upper packer assembly of said isolation packer sealingly engages the casing above said casing valve and a lower packer assembly of said isolation packer sealingly engages the casing below said casing valve;

setting said anchor means against said casing to provide sufficient resistance between said drill string and casing to operate a motion compensator on the floating vessel; and

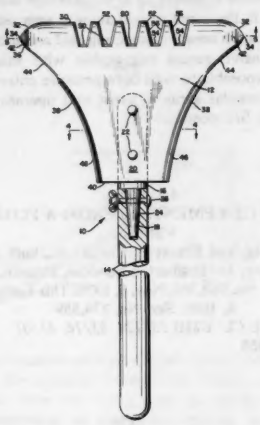
pumping a cement slurry into said drill string, out a port of said isolation packer between said upper and lower packer assemblies, through the opened casing valve into the annular cavity between the casing and the well borehole.

4,334,583

MULTI-PURPOSE LIGHT DUTY GARDEN TOOL

George A. Parker, 3810 Carpenter St., S.E., Washington, D.C. 20020

Filed Jan. 19, 1981, Ser. No. 225,998
Int. Cl.[3] A01B *1/20, 1/14*
U.S. Cl. 172—375 7 Claims



1. A light-weight, multi-purpose light-duty yard tool comprising a small sheet metal blade part secured to one end of a pole handle: said blade part being essentially planar and shaped like a truncated triangle, the wide part at the front and the narrow heel part at the rear, and the front being substantially wider than the heel part, the blade part having bent up side edge portions extending along a portion of the sides thereof from the heel part and providing a shovel aspect, said front having edge cutouts providing teeth for a rake function, forward portions of both of the side edges of said blade part, forward of the bent up side edge portions, being substantially free of the upward bending of the side edge portions, said forward portions also being sharpened to provide edging and slicing functions; the ends of said front edge have a rearwardly curving arc and the end portions including said curving arc and the terminal portions of the side edges are slightly cupped upwardly relative to said forward portions of said side edges; and means securing the heel of said blade part to said pole handle.

4,334,584

METHOD AND APPARATUS FOR INSTALLING A SEA-FLOOR CELLAR IN A SUBSEA BOTTOM HAVING COMPACTED SOIL CONDITIONS

James M. Magill, Houston, Tex., assignor to Atwood Oceanics, Inc., Houston, Tex.

Filed Feb. 11, 1980, Ser. No. 120,375
Int. Cl.[3] E21B *7/12*
U.S. Cl. 175—5 9 Claims

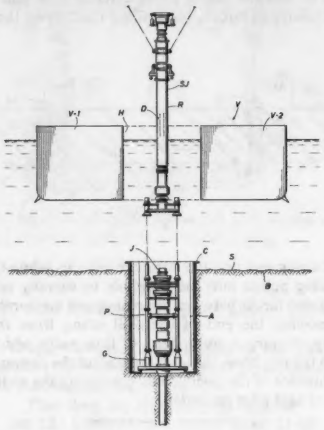
1. A method of installing a sea-floor cellar in shallow water areas in order to position a blowout preventer stack substantially below the surface of the sea floor, which has a hard or compacted soil structure, comprising the steps of:

drilling a first pattern of first bore holes in a configuration generally the same as the sea-floor cellar to be installed in order to produce a first honeycomb soil structure of substantially the same configuration and depth as the sea-floor cellar to be installed;

drilling a second pattern of bore holes into said first honeycomb wherein each bore hole of said second pattern has a larger diameter than the bore holes in said first pattern thereby producing a second honeycomb soil structure;

inserting a bar member into said second honeycomb of bore holes, and rotating said bar member therein to eliminate standing walls in said second honeycomb to produce a substantially cleared recessed area;

utilizing fluid jetting action to further loosen and suspend said particles during and after use of said rotating bar



member in said second honeycomb of holes to create a clear, recessed area having outer walls of a configuration and sufficient depth to receive said sea-floor cellar; and

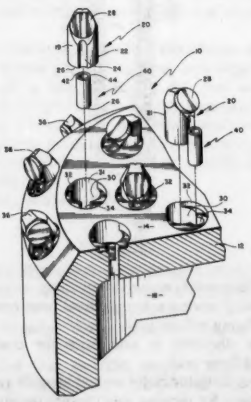
implanting such sea-floor cellar in said recess while simultaneously removing at least some of such suspended particulate.

4,334,585

INSERT RETENTION AND COOLING APPARATUS FOR DRAG BITS

Robert G. Upton, Dana Point, Calif., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Jul. 14, 1980, Ser. No. 168,863
Int. Cl.[3] E21B *10/46*
U.S. Cl. 175—329 8 Claims



1. A rock bit comprising:

a drag bit portion of said rock bit having a first cutting end, said drag bit portion forming a face at said first cutting end, said drag bit portion further forming a first chamber therein that communicates with a second chamber defined

in a body of said rock bit, said second chamber communicating with an opening formed in an inlet end of said body of said rock bit,

one or more diamond insert stud retention holes is strategically formed in said face of said drag bit portion to position one or more diamond studded inserts within said holes for maximum penetration of an earth formation,

a groove formed in a wall of a grip length of said diamond insert stud, said groove being substantially axially aligned with said stud, said groove being oriented substantially in line with a diamond cutting disk attached to said insert,

a second aperture formed in each wall of said insert holes in said face of said drag bit portion, said second aperture being substantially axially aligned with said insert holes, said second aperture is in communication with said first chamber formed by said drag bit portion, said second aperture being closed out when said diamond insert stud is inserted within said one or more stud retention holes, said groove in said wall of said stud is aligned with said second aperture in said wall of said insert retention hole, and

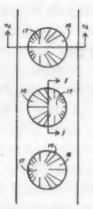
a longitudinally extending insert retention pin having first and second ends, said pin forming a longitudinal conduit therethrough from said first to said second end, the outside surface of said pin means being shaped to fit within said second aperture formed between said drag bit portion and said groove in said wall of said diamond insert stud, said pin serving to lock said diamond insert stud within said face of said rock bit, said longitudinal conduit in said pin serving to direct a fluid in said first chamber over the diamond cutting disk of said diamond insert stud during operation of said rock bit.

4,334,586

INSERTS FOR DRILLING BITS

Percy W. Schumacher, Houston, Tex., assignor to Reed Rock Bit Company, Houston, Tex.

Filed Jun. 5, 1980, Ser. No. 156,719
Int. Cl.³ E21B *10/16, 10/56*
U.S. Cl. 175—374 **10 Claims**



1. In a rolling cutter drill bit of the type having a central body, an upper threaded pin end, a plurality of downwardly extending legs on said body, each said leg having a bearing journal protruding therefrom, and a generally frusto-conical cutter rotatably mounted on each said bearing journal, at least one of said cutters having a gage row and at least one nongage row of hard metal cutting elements inserted therein and protruding therefrom, the improvement comprising:

a majority of said cutting elements in at least one of said rows comprises asymmetrical elements having a generally cylindrical base portion and an asymmetrical protruding portion; and,

wherein said asymmetrical portions of at least two of said elements in said one row are arranged at different angular orientations in relation to a circumference of said cutter.

9. A hard metal insert for use as a cutting element in rock cutting and drilling apparatus said insert comprising:

a generally cylindrical base section having a central longitudinal axis; and,

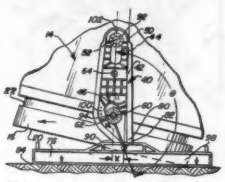
a frusto-conical protruding section having a rounded top end, said protruding section consisting of a non-right-circular cone having a central axis non-aligned with the central axis of said base section, and said top end being radially displaced from said base section central axis.

4,334,587

OFFSET WALKING SPUD

Krishnaswamy Rangaswamy, Wheaton, Ill., assignor to Page Engineering Company, Chicago, Ill.

Filed Jul. 22, 1980, Ser. No. 171,259
Int. Cl.³ B62D *57/02*
U.S. Cl. 180—8 R **6 Claims**



1. In a walking mechanism for an excavator or the like, said excavator comprising a main frame having a center of gravity, said walking mechanism comprising:

a hinge pin and a rotatable eccentric crank pin projecting substantially horizontally from a side of said main frame, said pins being spaced generally vertically from each other and defining a generally vertical axis pivotal about the horizontal axis defined by said hinge pin and spaced longitudinally from said center of gravity;

an upright leg having a lower end and means mounting said leg to said pins for movement of said leg with said vertical axis; and

a longitudinally extending shoe mounted to said lower leg end for movement therewith, the improvement wherein said shoe is attached to said leg lower end at a point spaced longitudinally from said vertical axis toward said center of gravity.

5. A walking spud for use in a walking dragline excavator or the like, said excavator including a hinge pin and a rotatable eccentric crank pin spaced vertically from said hinge pin, said spud comprising an upright leg mounted to said hinge pin, said crank pin and an attachment point on a longitudinally extending shoe such that said attachment point is displaced longitudinally from an axis extending through said hinge and crank pins.

4,334,588

VEHICLE ENGINE NOISE REDUCING ASSEMBLY

Toru Tezuka, Sagamihara, and Akira Matsuda, Atsugi, both of Japan, assignors to Caterpillar Mitsubishi Ltd., Tokyo, Japan

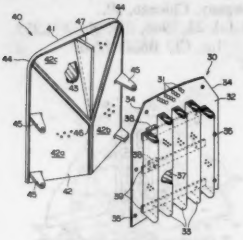
Filed Feb. 14, 1980, Ser. No. 121,347
Claims priority, application Japan, Apr. 27, 1979, 54-052279
Int. Cl.³ B60K *11/04*
U.S. Cl. 180—68 P **13 Claims**

1. A noise reducing assembly for use in an earthmoving vehicle (**20**) provided with a cooling fan (**23**), a radiator (**24**), a radiator guard (**21**) disposed in front of said radiator (**24**), having left and right upper shoulder portions, and having an air exhaust opening (**22**), the assembly comprising:

a sound absorbing grille (**30**) including a perforated panel (**32**) sized for covering at least a portion of said air exhaust opening (**22**), a plurality of sound absorbing louvers (**33**) and means for mounting said louvers on said perforated panel; and,

a sound and air diverting unit (**40**) disposed in spaced relationship in front of said sound absorbing grille (**30**), including means (**42*a*,42*b*,42*c***) for diverting the sound and air from said sound absorbing grille (**30**) vertically and transversely of the vehicle body, said sound and air diverting

means includes left and right slopes (42*a*, 42*b*) extending from a vertical ridge (46) in substantially the central portion of the rear surface of said sound and air diverting unit (40) to the left and right vertical edges of said unit (40), respectively, thereby being inclined toward the front of the vehicle body (20), said sound and air diverting unit



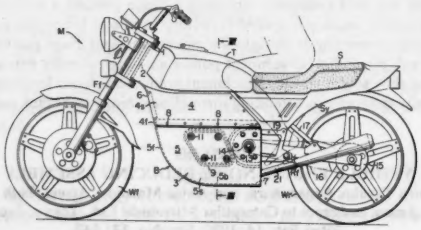
(40) further including an upper slope (42*c*) extending from substantially the central portion of the rear surface of said sound and air diverting unit (40) to the upper edge thereof, thereby being inclined toward the front of the vehicle body, said sound and air diverting unit (40) containing a sound absorbing material.

4,334,589

TWO-WHEELED MOTORCYCLE WITH COMBINED FRAME AND COWLING STRUCTURE

Toshimitsu Asakura, Wako, and Azusa Noda, Tokyo, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 18, 1980, Ser. No. 170,974
Claims priority, application Japan, Jul. 20, 1979, 54/92415
Int. Cl.³ B62K *11/08, 19/08*
U.S. Cl. 180—219 **6 Claims**



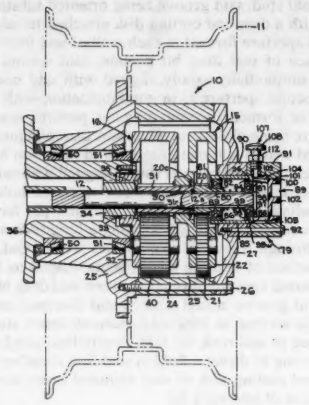
1. A two-wheeled motorcycle in combination with a combined frame and cowling structure, said motorcycle having a head pipe mounting thereon a front fork, a rear fork for supporting a rear wheel, and a power unit for driving said rear wheel, said combined frame and cowling structure comprising a shell in the form of a streamlined configuration entirely enclosing therein said power unit, said shell being formed of an upper shell half, having a top plate and a pair of opposite side plates, and a lower shell half, having a bottom plate and a pair of opposite side plates, said upper and lower shell halves being detachably joined together at the peripheral edges of said upper and lower side plates, said head pipe being attached to said upper shell half at its front end, said power unit being secured at its opposite sides to the opposite side plates of said lower shell half for reinforcing transverse rigidity of said shell, said rear fork being pivotally mounted on said power unit.

4,334,590

QUICK DISENGAGEMENT APPARATUS FOR WHEEL DRIVE MECHANISMS

Bruce E. Plumb, Salinas, Calif., assignor to Bud Antle Inc., Salinas, Calif.

Filed Feb. 19, 1980, Ser. No. 122,504
Int. Cl.³ B60K *17/26*
U.S. Cl. 180—247 **4 Claims**



1. In a wheel drive mechanism of the class for installation in a vehicle wheel hub for transmitting power from a driven shaft supported centrally of the hub to the wheel, said mechanism having a sun gear mounted on the shaft for rotation therewith, a planetary gear set having at least one pinion for meshing with the sun gear in driven relation thereto, a vehicle wheel hub geared to said planetary gear for rotating said wheel, said sun gear operably detachable from said planetary gear; an improved sun gear comprising in combination: a second shaft joined to said driven shaft at one end, having an elongated splined portion formed on the other end; said sun gear having a splined opening for engagement with said splined portion of said second shaft so as to be moveable longitudinally of the shaft into and out of engagement with the pinion, means for resiliently biasing said sun gear longitudinally of said splined portion to a position at which said sun gear meshes with said pinion, and means accessible exterior of said hub for moving said sun gear longitudinally of said splined portion and for rotative movement independent of said splined portion against said biasing means for selectively disengaging said sun gear from said pinion.

4,334,591

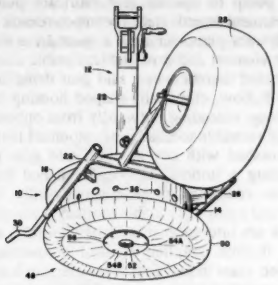
TRANSPORTER FOR LOW ENERGY SEISMIC SOURCE

Philip N. Martin, Tulsa, Okla., assignor to Mapco, Inc., Tulsa, Okla.

Continuation-in-part of Ser. No. 963,982, Nov. 27, 1978, Pat. No. 4,223,759. This application Sep. 18, 1980, Ser. No. 188,370
Int. Cl.³ G01V *1/104*
U.S. Cl. 181—116 **20 Claims**

1. An improved seismic energy source comprising:
a base having an opening therethrough and having a lower and upper end;
a gun mounted on said base upper end for firing a projectile to impact the earth's surface and generate a seismic signal; and
a flexible diaphragm affixed at its periphery to said base

lower end, the diaphragm having an opening through which projectiles fired by said gun pass, the diaphragm



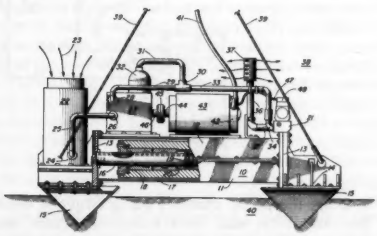
serving to intercept material dislodged from the earth when a projectile is fired.

4,334,592

SEA WATER HYDRAULIC FLUID SYSTEM FOR AN UNDERGROUND VIBRATOR

Delbert W. Fair, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Dec. 4, 1980, Ser. No. 212,938
Int. Cl.[3] G01V *1/145, 1/053*
U.S. Cl. 181—121 4 Claims



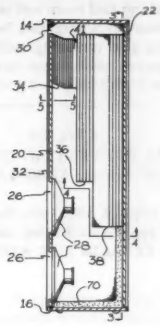
1. A hydraulic drive system for an underwater vibrator having a housing including a top, sidewall means, and a bottom; seabed engaging means attached to said bottom; positioning means coupled to said housing; vibratory means including a mass member which has pistons and cylinder means, inside said housing with said piston rods extending outside said mass and attached to the inside of said housing; and hydraulic drive means including a hydraulic fluid pump which has an inlet port and an outlet port; a motor means coupled to drive said hydraulic fluid pump; a control valve having an inlet port, an outlet port, and a control signal input, said hydraulic drive system comprising a filter having an inlet adapted for communication with said water; conduit means coupled from the outlet port of said filter to the inlet port of said fluid pump; a conduit coupled from said outlet port of said fluid pump to the inlet port of said control valve; and means, coupled to the outlet port of said control valve which is adapted to exhaust the outlet port from said control valve to said water, whereby fluid sucked into said filter will be substantially cleared of particulate matter, compressed by said fluid pump, controllably applied to said pistoncylinder combination through said control valve and exhausted from said control valve to said water, thereby eliminating most of the accumulator, fluid coolers, and sump necessary for a confined hydraulic system.

4,334,593

SOUND REPRODUCTION SYSTEM

Edward L. Sechrist, 30446 County Rd., 12 West, Elkhart, Ind. 46514

Filed Nov. 18, 1980, Ser. No. 207,746
Int. Cl.[3] H05K *5/00*
U.S. Cl. 181—144 10 Claims



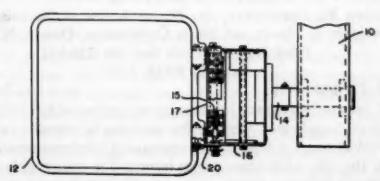
1. In a sound reproduction system including a closed housing having a front wall, a sound reproduction speaker, an opening through said front wall, said speaker mounted adjacent said opening to project sound therethrough, an elongated sound transmitting slot through said front wall adjacent the upper end thereof, and sound resonating chambers mounted on said front wall between said speakers and said sound transmitting slot, the improvement wherein said sound resonating chambers are a series of panels having tapered sides and spaced from one another parallel to said front wall, said panels separated from one another by spacers having a thickness greater than the thickness of said panels, a pair of said spacers positioned along said tapered sides of each of said panels to form compartments between said panels, the small end of said panels adjacent said speaker and the large end of the panels adjacent said sound transmitting slot, said panels divided into three juxtaposed sections, each section having multiple panels of the same length, said section having three different lengths, a first section having the shortest length forming a treble chamber, a second section having the intermediate length forming a mid-range chamber, a third section having the longest length forming a bass chamber, said first panel section located nearest said housing front wall, said panel third section located furthest from said housing front wall, said second panel section located between said first and third panel sections.

4,334,594

AERIAL DEVICE

Richard P. Jost, St. Louis, Mo., assignor to McCabe Powers Body Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 969,169, Dec. 13, 1978, abandoned. This application Sep. 27, 1979, Ser. No. 79,456
Int. Cl.[3] B66F *11/04*
U.S. Cl. 182—2 4 Claims



1. An articulated aerial device comprising a movable beam,

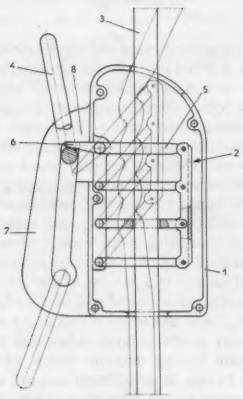
a workman's basket, means attaching the basket to said beam permitting the basket to depend therefrom and pivot about an axis therethrough, biasing means attached to the basket to resist pivoting of the basket around said axis, and releasable locking means for locking said beam and basket together, release of the locking means permitting the basket to be pivoted against the bias of said biasing means, said releasable locking means including releasable clamp means having a locked position locking said beam and said basket together and an unlocked position unlocking said basket from said beam, said locking means also including safety means which in a latched position prevent said clamp means from moving from the locked position to the unlocked position.

4,334,595

FALL PREVENTING DEVICES

Albert Koch, Doux Sejour, 67860 Lutzelhouse (Bas-Rhin), France

Filed Sep. 18, 1980, Ser. No. 188,534
Claims priority, application France, Jan. 10, 1979, 79 25271
Int. Cl.³ A62B *1/14;* A63B *27/00*
U.S. Cl. 182—5 **2 Claims**



1. An instantaneously acting fall preventing device, essentially comprising a box containing a locking mechanism in the form of a series of rings, said mechanism being adapted to co-operate with a retaining cord, and a connecting element adapted to attach said box to a harness or safety belt, wherein a ring at one end of said series of rings is provided with a lever which passes through a wall of said box and passes out beyond said wall into a guidance member for the connecting element and when the device is in the unlocked position this lever is applied against an abutment within the guidance member and moves away from this abutment when the cord is in the locked position in the case of a fall by cancelling out the weight action of the device.

4,334,596

HYDRAULIC FLUID-OPERATED RAILWAY TRACK LUBRICATING APPARATUS

Stephen M. Lounsberry, Jr., deceased, late of Nichols, N.Y., assignor to Moore and Steele Corporation, Owego, N.Y.

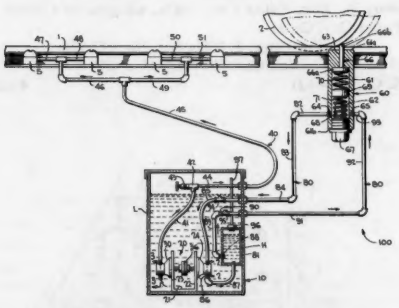
Filed Nov. 26, 1980, Ser. No. 210,621
Int. Cl.³ B61K *3/00*
U.S. Cl. 184—3 A **7 Claims**

1. In a railway track lubricating apparatus which includes at least one applicator element for applying lubricant to a rail of a railway track, a supply tank containing lubricant positionable near the rail, a lubricant pump mounted in said supply tank, a lubricant delivery system connecting said lubricant pump and each applicator element, an actuator element mountable along the length of the rail to be activated by the wheel of a railway vehicle passing thereover, and a hydraulic fluid recirculation system connected between said actuator element and said lubricant pump to operate said lubricant pump when said actuator element is activated, the improvement wherein

said lubricant pump includes a gear drive element, a gear pump element and a rotatable, flexible coupling element connected therebetween; said gear drive element including a hollow, elliptically-shaped housing having hollow couplings extending outwardly from opposite sides and a pair of rotatable toothed gears mounted therein which are intermeshed with one another; said gear pump element including a hollow, elliptically-shaped housing having hollow couplings extending outwardly from opposite sides and a pair of rotatable toothed gears mounted therein which are intermeshed with one another; and said rotatable, flexible coupling element connecting one of the toothed gears in said gear drive element housing with one of the toothed gears in said gear pump element housing,

the end of said lubricant delivery system which is connected to said lubricant pump being connected to one of said hollow couplings of said gear pump housing,

said actuator element comprising an elongated block having a top surface and a bottom surface and including a internal-piston chamber extending inwardly from the bottom surface of said housing and a bore communicating between said piston chamber and the top surface of said



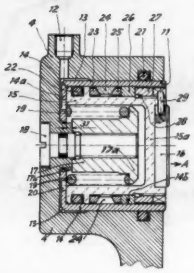
housing, the piston chamber being larger in dimensions than said bore, said block including threads near said bottom surface and two radial openings communicating with said piston chamber, a T-shaped plunger having a base and a stem mounted in said block such that the base is movable along said piston chamber and the stem is movable along said bore, a plug threadingly connected to the threads on said block to enclose the opening of said piston chamber at the bottom surface of said block, a piston located in said piston chamber to be axially movable therealong, a first coiled spring positioned between said base of said plunger and said piston, and a second coiled spring positioned between said plunger and said plug, and

said hydraulic fluid recirculation system comprising a fluid-containing storage receptacle having a bottom, sides and a top mounted in said supply tank, a first conduit means connecting one of said radial openings in said actuator element block with one of the hollow couplings of said gear drive element housing, a second conduit means connecting the other of said hollow couplings of said gear drive element housing with the bottom of said storage receptacle; and a third conduit means connecting a side of the storage receptacle with the other of said radial openings in said actuator element block, each of said first and third conduit means including a one-way check valve so as to allow hydraulic fluid in said recirculation system to flow therethrough in only one direction.

4,334,597
BRAKE WEAR COMPENSATING DEVICE

Costantino Tovagliaro, Milan, Italy, assignor to Magnaghi Oleodinamica S.p.A., Milan, Italy

Filed Jul. 5, 1979, Ser. No. 54,702
Claims priority, application Italy, Jul. 10, 1978, 25485 A/78
Int. Cl.³ F16D 65/52
U.S. Cl. 188—71.8 1 Claim



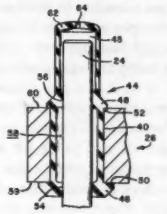
1. In a disc brake comprising two brake jaws and a hydraulic brake actuating system including a cylinder fixed to one of the brake jaws, a first cup-shaped piston slidably mounted in the cylinder, the first piston having a ring-shaped bottom, a second cup-shaped piston slidably mounted in the first piston, the second piston having a closed bottom opposite the ring-shaped bottom of the first piston, and resilient means arranged between the first piston and the cylinder, the resilient means being biased to hold the first piston normally at a rest position: a brake wear compensating device which comprises a friction means mounted between the first and second pistons and effective to hold the second piston substantially stationary with respect to the first piston by an axial loading force exceeding the bias of the resilient means, the friction means consisting of a pair of closed rings, the closed rings having radially inwardly tapering faces facing each other, an open ring arranged between the closed rings and having opposite faces in contact with the radially inwardly tapering faces of the closed rings whereby the open ring is axially wedged between the closed rings, the open ring having a first cylindrical surface facing the first piston and a second cylindrical surface facing the second piston, the first cylindrical surface being greater than the second cylindrical surface, and means for pressing the closed rings axially together under said axial loading force for radially expanding the open ring therebetween, the first piston and the closed rings being of a material having the same thermal expansion coefficient and the closed rings defining a radial clearance with the first and second pistons.

4,334,598
DISC BRAKE ASSEMBLY AND RESILIENT MEMBER THEREFOR

Larry A. Portolese, Granger, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jun. 2, 1980, Ser. No. 155,356
Int. Cl.³ F16D 65/02
U.S. Cl. 188—73.44 1 Claim

1. In a disc brake, a torque plate disposed adjacent a rotor to be braked, a pair of friction elements disposed on opposite sides of the rotor, a caliper cooperating with the pair of friction elements to bias the latter into engagement with the rotor during braking, a pin extending between the torque plate and the caliper to movably support the caliper relative to the torque plate, the caliper including an aperture for receiving the pin, and a resilient member carried by the caliper within the aperture to accommodate a clearance between the pin and the wall of the aperture, characterized by said resilient member including an opening for receiving said pin, said resilient member also including a pair of inwardly extending ribs being disposed at an axial location within said opening spaced from but substantially adjacent the aperture, said pair of ribs cooperating with said pin to define an annular cavity within the aperture so as to maintain said pin in spaced relation to said resilient member within the aperture, said pair of ribs fixedly engaging said pin to move with said pin when said caliper moves relative to said pin during braking, one of said pair of ribs moving with

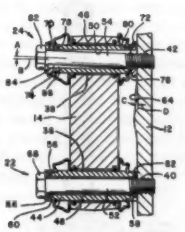


said pin to deflect into the aperture during braking so that the wall of the aperture maintains a tight engagement between said one rib and said pin, the tight engagement providing for retraction of the caliper by said one rib upon termination of braking, and said resilient member further including a cap substantially enclosing said pin but remaining spaced therefrom to avoid interferring with movement between said pin and said resilient member.

4,334,599
DISC BRAKE AND MOUNTING PIN ASSEMBLY THEREFOR

Irving R. Ritsema, and Ji Y. Woo, both of South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Aug. 18, 1980, Ser. No. 179,322
Int. Cl.³ F16D 65/02
U.S. Cl. 188—73.45 1 Claim



1. In a disc brake assembly, the combination of, a torque member disposed adjacent a rotor to be braked, a pair of pin assemblies extending from the torque member in a direction opposite the rotor, a caliper slidable on said pin assemblies and cooperating with a pair of friction elements to urge the latter into engagement with the rotor, each of said pair of pin assemblies including a sleeve defining an opening, a bolt extending through said opening to engage said torque member, and a pair of washers, said bolts being secured to said torque member in order to retain said sleeves fixedly disposed relative to said torque member, said washers of one pin assembly engageable respectively with opposite ends of said sleeve of said one pin assembly and cooperating therewith to substantially prevent lateral movement of said sleeve of said one pin assembly relative to said bolt of said one pin assembly, said washers of the other pin assembly engageable respectively with opposite ends of said sleeve of said other pin assembly and cooperating therewith to permit angular orientation of said sleeve of said other

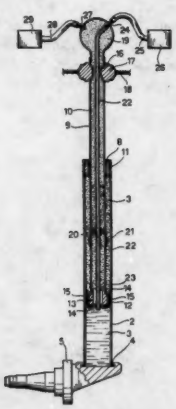
pin assembly relative to said bolt of said other pin assembly, said washers of said other pin assembly also permitting lateral movement of said sleeve of said other pin assembly relative to said bolt of said other pin assembly, said washers of said other pin assembly defining openings therethrough substantially equal in diameter to said opening in said sleeve of said other pin assembly to form a large clearance with said bolt of said other pin assembly, said washers of said one pin assembly defining openings therethrough substantially equal in diameter to said bolt of said one pin assembly to form a close fit therewith, said washers of said one pin assembly being formed with conically tapered surfaces and said opposite ends of said sleeve of said one pin assembly being tapered to receive said tapered surfaces of said washers of said one pin assembly therein to thereby prevent said lateral movement, said washers of said other pin assembly being formed with arcuate surfaces and said opposite ends of said sleeve of said other pin assembly having corresponding arcuate surfaces engageable with said arcuate surfaces of said washers of said other pin assembly to thereby permit said angular orientation and lateral movement.

4,334,600

OLEO-PNEUMATIC SHOCK ABSORBER

Mauro Palitto, Collegno, Italy, assignor to Fiat Auto S.p.A., Turin, Italy

Filed Jun. 26, 1980, Ser. No. 163,140
Claims priority, application Italy, Jul. 26, 1979, 68555 A/79
Int. Cl.³ F16F *9/06*
U.S. Cl. 188—314 **2 Claims**



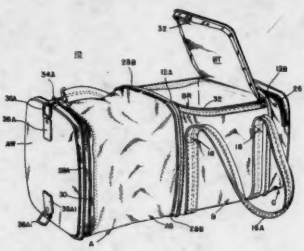
1. An oleo-pneumatic shock absorber for use as a load-bearing element in a vehicle wheel-suspension arrangement comprising an oil-containing cylinder arranged for connection to the hub of a wheel, a drowned piston located in said cylinder and provided with flow determining means for determining fluid flow past the piston during operation of the shock absorber, a piston rod extending from said piston out of said cylinder for connection at the external end thereof to the body of a vehicle, said piston and piston rod being hollow in construction and having closure means at the external end thereof and a supply of gas and oil therein, and a tube extending through the interior of said hollow rod which projects from the end thereof located inside said cylinder and means providing access to said tube externally of said rod adjacent the external end of said rod and connected to a unit for the selective supply and removal of oil to said cylinder.

4,334,601

UTILITY BAG

Johnnie G. Davis, Mexico, Mexico, assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Jun. 5, 1980, Ser. No. 156,644
Int. Cl.³ A45C *7/00*
U.S. Cl. 190—44 **11 Claims**



1. A multiple compartment utility bag comprising in combination:

a central section having wall means defining a central compartment, said central compartment comprising a top wall, bottom wall, parallel side walls and parallel end walls; and

first and second flexible end sections secured at the respective end walls of said central compartment such that said end walls of said central compartment form respective common walls between said central compartment and each of said first and second flexible end sections, each of said sections being further defined by a first end wall and one of said common end walls;

said first flexible end section comprising a collapsible and extensible first end compartment between said first end wall of said first flexible end section and said opposite common end wall of said central compartment, retained in its collapsed state by a fully peripheral slide fastener means, said end compartment housing a collapsed and extensible sleeve which, when said peripheral slide fastener means is in its opened state, is extendable so as to provide for the expansion of said flexible end section thereby defining an elongated end compartment adjacent said central compartment, said extensible sleeve having an access slide fastener means adjacent the first end wall of said first flexible section such that when said access fastener is in its opened state said first end wall can be opened outward so as to permit full access to said elongated end compartment;

said second flexible end section comprising a fixed dimension second collapsible end compartment including a slide fastener means extending across the entire top surface thereof and portions of the side surfaces providing access to said second end compartment;

said top wall of said central compartment including a slide fastener means therein defining a flap configuration for providing access to said central compartment.

4,334,602

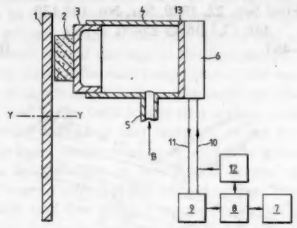
FRICTION CONTROLLER

John S. Armour, Farnborough, and Peter M. F. Watson, Wokingham, both of England, assignors to The Minister of Transport in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Apr. 1, 1980, Ser. No. 136,218
Claims priority, application United Kingdom, Sep. 26, 1979, 7933380
Int. Cl.³ B60T *8/04*; F16D *43/24*
U.S. Cl. 192—103 F **15 Claims**

1. A friction controller assembly comprising a rotatable disc member, a pad of high friction material arranged selectively to

contact the disc member, a transducer disposed so as to apply ultrasonic vibration to the pad, a sensor adapted to monitor an



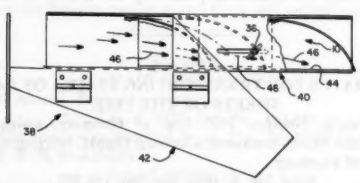
external parameter and connected to apply a signal to the transducer, and an ultrasonic generator and another funtion generator in circuit between the sensor and the transducer.

4,334,603

ARTICLE DECELERATING ASSEMBLY AND METHOD

Howard J. Carter, Santa Clara, and William C. Staiger, Cupertino, both of Calif., assignors to Acurex Corporation, Mountain View, Calif.

Filed Jul. 28, 1980, Ser. No. 172,565
Int. Cl.³ B65G *11/20*
U.S. Cl. 193—32 **16 Claims**



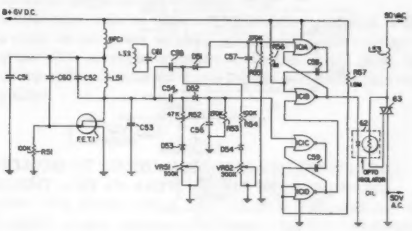
1. In an apparatus of the type in which relatively small and fragile articles such as shelled peanuts move along a path and initially into a given section of the latter at a downward angle towards an article support surface, an assembly for decelerating movement of said articles along the given section of said path, said assembly comprising first and second elongated, flexible flap means having top and bottom ends, means for supporting said flap means at their top ends such that the flap means extend downward in spaced apart confronting relationship with one another, and means for maintaining said support means in a fixed position relative to said given path section such that said first and second flap means extend downward into said path section for successively intercepting said articles as the latter move through the path section said first flap means being positioned to intercept said articles before the latter reach said surface and being sufficiently flexible such that impingement of said articles onto said first flap means causes the latter to deflect upwardly and rearwardly in the direction of movement of said articles such that some other articles first entering said path section in flight pass under said first flap means while in fight without impinging on the latter, and said second flap means being located sufficiently close to said first flap means so as to intercept said other articles before the latter reach said article support surface.

4,334,604

COIN DETECTING APPARATUS FOR DISTINGUISHING GENUINE COINS FROM SLUGS, SPURIOUS COINS AND THE LIKE

Ronald C. Davies, Las Vegas, Nev., assignor to Casino Investment Limited, Hong Kong

Filed Mar. 15, 1979, Ser. No. 21,305
Int. Cl.³ G07F *3/02*
U.S. Cl. 194—100 A **5 Claims**



1. A coin detecting apparatus for distinguishing genuine coins from slugs, spurious coins and the like, comprising an oscillator circuit having a resonant tank circuit including a single inductance and capacitance means for varying the amplitude of a signal produced by the oscillator circuit in accordance with the losses of the tank circuit; and coin directing means of non-magnetic material for guiding coins, slugs, spurious coins and the like to a predetermined locality, the single inductance means of the resonant tank circuit being positioned completely around the coin directing means in close proximity with an area of the coin directing means in a manner whereby the inductance means forms an air core coil and the coins and the like pass completely through the coil from one end to the other and said losses are determined by the metal content of a coin and the like passing through the coin directing means and through the coil, the coin and the like forming the core of the coil when passing through the coil; characterized in that there is also provided a passive resonant circuit in close proximity to but electrically unconnected to the air core coil for sensing the dimensions of the coin, said passive resonant circuit being adapted to resonate at the frequency to which the oscillator rises when a desired coin passes through the air core coil, whereby the losses due to material content and the frequency rise due to dimensions are combined to check genuine coins as compared with spurious coins; and direction switching means in said coin directing means at said predetermined locality for selectively accepting and rejecting coins and the like in accordance with the signal produced by said resonant tank circuit and said passive resonant circuit.

4,334,605

TECHNIQUE FOR HANDLING AND TREATING HEAVY WASTE HYDROCARBONS

Franz A. Hitt, 345 Clifford, Corpus Christi, Tex. 78404

Filed Jan. 16, 1981, Ser. No. 225,738
Int. Cl.³ C10G *21/14*
U.S. Cl. 196—46 **15 Claims**

1. A system for recovering hydrocarbons from a heavy hydrocarbon waste having water therein, from a pit, comprising

a pit heater for at least partially liquifying the heavy hydrocarbon waste and means for lowering the pit heater into the pit;

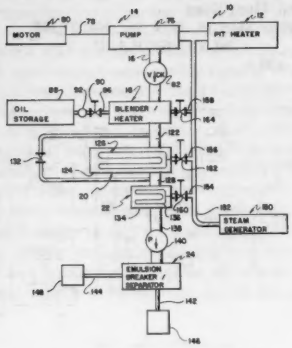
a pump having an inlet carried by the pit heater for withdrawing the hydrocarbon waste from the pit and an outlet;

a blender for mixing the hydrocarbon waste with a mixing oil of higher API gravity having an inlet connected to the pump outlet and an outlet, including

a storage tank for holding a mixing oil of higher API gravity than the waste,

means for injecting the mixing oil into the blender, and

means for heating the mixed hydrocarbon waste and the mixing oil; and



means, in material receiving relation with the blender outlet, for separating water from the mixed hydrocarbon waste and mixing oil.

4,334,606

ALLOCATING MEANS FOR SAWMILLS

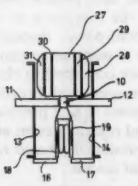
Sven E. Östberg, Söderhamm, Sweden, assignor to Kockums Industri AB, Sweden

Filed Feb. 26, 1980, Ser. No. 124,846

Claims priority, application Sweden, Feb. 27, 1979, 7901728

Int. Cl.³ B65G *47/12, 47/26*

U.S. Cl. 198—443 **5 Claims**



1. An allocating means for handling individual side boards immediately after a log has been sawed into a main yield and a number of sideboards on each side thereof, comprising:

(a) a longitudinal conveyor for transporting the main yield lengthwise;

(b) a pair of retractable sideboard supports respectively disposed at each side of said longitudinal conveyor for supporting the sideboards from below until retracted;

(c) a pair of stationary lateral guide means for laterally guiding the sideboards on said supports;

(d) a number of releasable gripping members between said pair of guide means and below said retractable supports, one for each pair of the sideboards, disposed at a level below said longitudinal conveyor, and adapted to momentarily grip one of each pair of the sideboards while permitting the other one to fall further; and

(e) a cross-conveyor disposed below said gripping members, and having compartments receptive of individual falling sideboards.

4,334,607

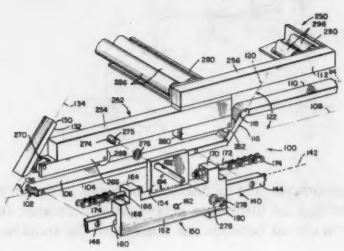
LOAD-ENTRY ASSEMBLY FOR CONVEYOR SYSTEMS

Thomas A. Dyer, Greenwood, Ind., assignor to Pentak Corporation, Indianapolis, Ind.

Filed Sep. 22, 1980, Ser. No. 189,130

Int. Cl.³ B65G *25/00, 37/00*

U.S. Cl. 198—487 **18 Claims**



17. In a load-entry assembly for a conveyor system including laterally spaced side frame members supporting a plurality of load-carrying rollers in a common plane to transport a load in a longitudinal direction, and a trolley for pushing the load off the load-carrying rollers at one end of the assembly, a mechanism for moving the trolley from a first plane below the plane of the load-carrying rollers to a second plane above the load-carrying rollers and vice versa, the mechanism including at least one multi-level track having track surfaces in at least two different planes for horizontally carrying the trolley in its first and second planes, and means movable horizontally in a single plane for vertically moving the trolley between its first and second planes in generally constant spaced parallel relationship thereto and for horizontally moving the trolley in its two planes.

4,334,608

APPARATUS FOR TRANSPORTING STACKS OF PAPER SHEETS OR THE LIKE

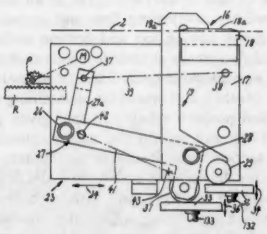
Paul Fabrig, Neuffen, Fed. Rep. of Germany, assignor to Womako Maschinenkonstrucktionen GmbH, Nürtingen, Fed. Rep. of Germany

Filed Jun. 4, 1980, Ser. No. 156,353

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1979, 2950617

Int. Cl.³ B65G *47/86, 25/00*

U.S. Cl. 198—650 **11 Claims**



1. Apparatus for transporting commodities, especially stacks of paper sheets, between spaced apart first and second stations, comprising support means having an exposed first side and a second side and defining an elongated path extending between the first and second stations, said support means further having an elongated opening extending between the first and second stations; a tongs having first gripper means and second gripper

means movable relative to said first gripper means; a carriage supporting said tongs, located at said second side of said support means and movable along said path from the first station to the second station and back to the first station so as to advance to the second station a commodity which is engaged by said gripper means at the first side of said support means during dwell of said carriage at the first station, and to return to the first station after said tongs opens at the second station so that the thus advanced commodity need not share the movement of said tongs back to the first station, said first gripper means being affixed to said carriage; means for moving said second gripper means relative to said first gripper means between a first position in which said second gripper means extends beyond said first side of said support means and cooperates with said first gripper means to engage and advance a commodity from the first to the second station, a second position in which said second gripper means is located at said second side of said support means during movement of said carriage toward the first station and an intermediate position in which said tongs is open and said second gripper means extends beyond said first side of said support means, said moving means including means for moving said second gripper means through said intermediate position during movement of said second gripper means between said first and second positions, said second gripper means including a commodity-engaging portion which is located at a level above said first gripper means in said first position of said second gripper means and said second gripper means extending through said opening and beyond said first side of said support means in the first and intermediate positions of said second gripper means, said moving means including a lever pivoted to said carriage, means for pivotally connecting said lever with said second gripper means, means for pivoting said lever and said second gripper means relative to said carriage and means for pivoting said second gripper means relative to said lever; and means for moving the pivoting means for said lever independently of the pivoting means for said second gripper means to thereby move said second gripper means to and from said second position.

4,334,609

CHAIN MECHANISM

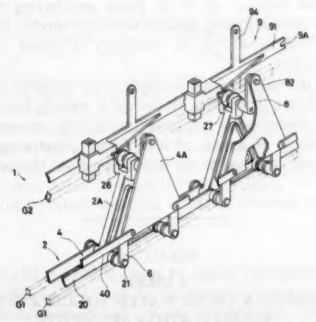
Keiichi Akashi, Toyonaka, Japan

Filed Dec. 4, 1979, Ser. No. 100,149

Claims priority, application Japan, Dec. 30, 1978, 53-164000; Apr. 1, 1979, 54-42553[U]

Int. Cl.³ B65G *17/16*

U.S. Cl. 198—797 **8 Claims**



1. A chain mechanism, comprising:

a main chain provided with triangular links disposed at a certain pitch interval and formed with a pivot in triangular disposition cooperatively with joints thereof;

an auxiliary chain having the same pitch and pitch number as said main chain and provided with triangular links arranged in opposite relationship to said triangular links of said main chain and formed with a pivot located identically to said triangular links of said main chain;

said auxiliary chain consisting of said triangular links, outer links and joint pins;

said joints of said main chain and joints of said auxiliary chain being coupled through a coupling link as well as said pivot of said main chain being coupled with said pivot of said auxiliary chain by a support link provided with a support rod for securing a carriage and having the same effective length as said coupling link;

said triangular links of said main chain being equipped with a roller at said pivot and said roller being guided along a guide plate arranged opposite to another guide plate on which rollers positioned at said joint of said main chain are guided.

4,334,610

METHOD OF STORING A SOLID CHLORINATING AGENT AND AN ARTICLE FOR STORING SAME

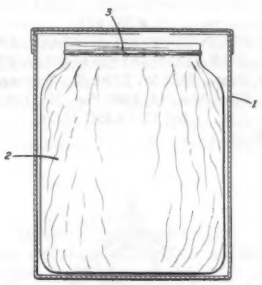
Masanori Ota; Toshiki Mori, and Tokuyuki Taniguchi, all of Funabashi, Japan, assignors to Nissan Chemical Industries, Ltd., Japan

Filed Jan. 17, 1980, Ser. No. 112,915

Claims priority, application Japan, Jan. 23, 1979, 54-6455; Nov. 16, 1979, 54-148366

Int. Cl.³ B65D *81/24*; C01B *11/02*; C11D *3/395, 7/54*

U.S. Cl. 206—205 **28 Claims**



1. A method of storing a solid chlorinating agent selected from the group consisting of trichlorinated isocyanuric acid, dichlorinated isocyanuric acid, sodium or potassium dichlorinated isocyanurate, calcium hypochlorite or sodium chlorite in a closed container comprising storing said solid chlorinating agent together with a storage stabilizer selected from the group consisting of trisodium phosphate, ferrous oxide, melamine, ammeline, ammelide and a mixture thereof, said storage stabilizer being brought into contact with the container but not with said solid chlorinating agent itself.

4,334,611

ENVELOPE TYPE CARTON

William H. Watson, and Chauncey Young, both of St. Louis, Mo., assignors to Container Corporation of America, Chicago, Ill.

Filed Dec. 22, 1980, Ser. No. 218,504

Int. Cl.³ B65D *85/02*

U.S. Cl. 206—303 **2 Claims**

1. A multi-layered, self-locking, envelope type carton, formed of a unitary blank of paperboard, comprising:

(a) a pair of top and bottom retaining panels;

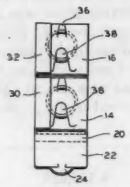
(b) a pair of first and second intermediate retaining panels, of substantially the same dimensions as said top and bottom panels, interposed therebetween and defining a plurality of compartments for holding packaged articles;

(c) said compartments being closed at the front and rear by

front and rear end panels extending between said top and bottom panels;

(d) said compartments being closed at the sides by side panels extending between said intermediate panels and said top and bottom panels;

(e) a closure panel foldably joined to said front end panel and having interlocking engagement with said top panel;



(f) first retaining means formed in the edges of said top, first intermediate and second intermediate retaining panels and adapted to serve as protective dividers between the packaged articles; and

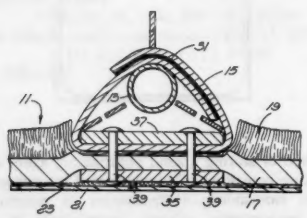
(g) second retaining tabs of a generally inverted V-shape formed in said first and second intermediate retaining panels on edges opposite to said first retaining tabs and adapted to separate the packaged articles.

4,334,612

COMBINATION SUPPORT SURFACE AND CARRIER FOR ELONGATED EQUIPMENT

Fernando J. Beato, 2424 W. 239th St., Torrance, Colo. 90501

Filed Mar. 11, 1980, Ser. No. 129,224
Int. Cl.³ A45C *11/26*
U.S. Cl. 206—314 **8 Claims**



1. Apparatus for protecting elongated objects, such as drum stands, during transport and for substantially immovably supporting such objects when the latter are in normal use, comprising:

a carpet means which is pliable so as to be selectively formed into a planar configuration and a substantially cylindrical configuration, the carpet means having

a generally skid-proof exposed surface and

a backing;

a substantially fluid impervious protective material, of a size approximately equal to the carpet means, located against the backing;

means for causing the protective material to closely adhere to the backing in both selective configurations;

means fastened to the exposed surface of the carpet for releasably fastening objects to be held thereon comprising at least one elongated strap means;

means for releasably fastening the ends of the at least one strap means together;

first support means located adjacent to the backing on one side of the carpet means and second support means on the side at the at least one strap means away from the exposed surface of the carpet means on the other side thereof; and

anchor means extending through the first and second support means, strap means, and carpet means, but not through the fluid impervious protective material, to hold the support means, strap means, and carpet means in fixed relationship; and

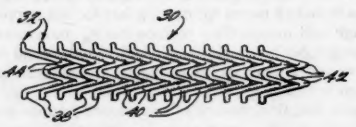
fastening means for releasably holding the carpet means in its cylindrical configuration.

4,334,613

STICK PACKAGE OF SPRING CLIP FASTENERS

Robert E. Males, West Warwick, and Edward A. Colechia, East Greenwich, both of R.I., assignors to Textron Inc., Providence, R.I.

Filed Mar. 14, 1980, Ser. No. 130,588
Int. Cl.³ B65D *85/24*
U.S. Cl. 206—340 **18 Claims**



1. A fastener package comprising a multiplicity of one-piece fasteners for attaching a spring member to a frame or the like, each of said fasteners including a bent length of metal providing

(1) a pair of frame penetrating portions disposed generally parallel with respect to one another and having free ends configured to facilitate simultaneous entry thereof into the frame,

(2) a pair of relatively short driving portions connected at one of their ends with the opposite ends of said frame penetrating portions and extending therefrom at generally right angles in directions generally toward one another, and

(3) a nestable portion connected with said driving portions bent to define a hook for receiving the spring member therein,

said multiplicity of fasteners being disposed in abutting row formation with the nestable portions thereof disposed in nested relation, all of the frame penetrating portions of said fasteners being parallel with one another and extending transversely to the direction of extent of the row formation, and

means for securing said multiplicity of fasteners in said row formation permitting release of a leading fastener in the row formation in response to a driving movement in the direction of extent of said frame penetrating portions thereof imparted to the driving portions thereof.

4,334,614

WINDINGS USING WATER-SOLUBLE WIND STABILIZATION SEGMENTS

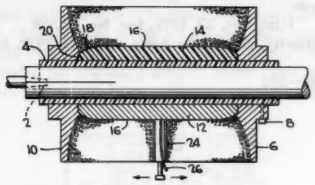
Ronald E. Zajac, Goldens Bridge, N.Y., assignor to Windings, Inc., Goldens Bridge, N.Y.

Filed Oct. 15, 1980, Ser. No. 197,255
Int. Cl.³ B65B *11/00, 53/02, 63/04;* B65D *85/672*
U.S. Cl. 206—389 **4 Claims**

1. A package of wound material, comprising:

a winding wound in a figure-8 configuration with a radial opening from the side of the winding into the inner axial

opening thereof through which the inner end of the material is brought out for unwinding; and



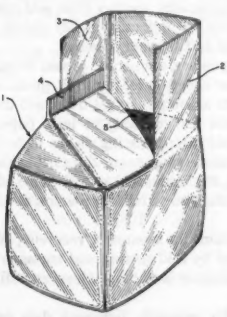
water-soluble stabilization segments mounted at spaced intervals along the inside diameter of the winding.

4,334,615

PACKAGE FOR COMPOUNDING RUBBER AND COMPOUNDED RUBBER

Kim D. Butler, Uniontown; Ray A. Young, East Sparta, and Alfred L. Brown, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 59,804, Jul. 23, 1979, Pat. No. 4,248,348. This application Oct. 6, 1980, Ser. No. 194,527
The portion of the term of this patent subsequent to Feb. 3, 1998, has been disclaimed.
Int. Cl.³ B65D *81/00, 85/00*
U.S. Cl. 206—447 **2 Claims**



1. A bag of ethylene/vinyl acetate film having an opening at its top which can be heat sealed; where said film has a thickness in the range of about 0.5 to about 10 mils and is comprised of a thermoplastic ethylene/vinyl acetate copolymer containing an anti-block agent and having a vinyl acetate content in the range of about 11 to about 22 percent and further characterized, when having a thickness of about 2 to 4 mils, by a melting point in the range of about 85° C. to about 95° C., a minimum ultimate tensile strength at 25° C. of about 1850 psi, an oil solubility melt index of about 63° C. to about 75° C. and a minimum 300 percent modulus at 25° C. of about 700 psi.

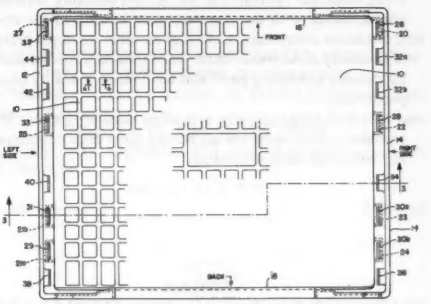
4,334,616

NESTABLE-STACKABLE PLASTIC RECEPTACLE

James D. Wilson, 421 Vista Suerte, Newport Beach, Calif. 92660

Continuation-in-part of Ser. No. 123,664, Feb. 22, 1980, abandoned. This application Jun. 12, 1981, Ser. No. 273,242
Int. Cl.³ B65D *21/04*
U.S. Cl. 206—505 **5 Claims**

1. A receptacle adapted to be stacked at a plurality of different stacking levels on a like receptacle, said receptacle comprising: a bottom; a pair of opposing side walls integral with said bottom; a plurality of discrete upper stacking lugs formed on the inner surface of each of said side walls at the upper edge thereof at spaced positions along said upper edge; a plurality of discrete lower stacking lugs formed at the lower edge of each of said side walls on the outer surface thereof at spaced positions along said lower edge; and a plurality of discrete intermediate stacking lugs formed on the inner surface of each of said side walls between the upper and lower edges thereof and disposed at spaced positions along each of said side walls and displaced longitudinally from corresponding ones of said upper stacking lugs, two of the intermediate stacking lugs on



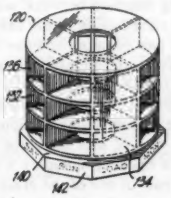
each of said walls being interposed between two of the upper stacking lugs thereon, and two of the upper stacking lugs on each side wall being interposed between two of the intermediate stacking lugs thereon; said lower stacking lugs being positioned in vertical alignment with the stacking lugs of one of the other pluralities; and said side walls defining openings therein located under the stacking lugs of said upper and intermediate stacking lugs for receiving the stacking lugs of the like receptacle.

4,334,617

MEDICATION DISPENSER

William Rossmo, 158 Mount Allison Crescent, Saskatoon, Saskatchewan, Canada

Continuation of Ser. No. 29,428, Apr. 12, 1979, Pat. No. 4,245,742. This application Oct. 10, 1980, Ser. No. 195,960
Claims priority, application Canada, Sep. 19, 1978, 311617
The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.
Int. Cl.³ B65D *83/04*
U.S. Cl. 206—534 **1 Claim**



1. A medication dispenser comprising a plurality of members coaxially mounted with respect to one another and including a container having at least three circular rows of compartments adapted to contain medication;

a first indexing member coaxially positioned with respect to the container and which, in response to movement between the container and the first indexing member, is capable of indexing positions that are representative of a series of time periods, an elongated opening in the first indexing member for communication with a plurality of aligned compartments

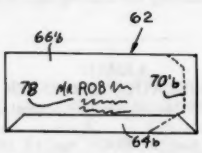
in said circular rows of the container and which contain medication to be dispensed within one of such time periods;
and a second movable indexing member coaxially mounted with respect to the first indexing member and adapted to be indexed to positions representing subsidiary time periods with the first-mentioned time periods and apertures in the second indexing member which, by rotation of the second indexing member, can be placed into registry with part of the elongated aperture in the first indexing member to give access to one of the compartments in the container; there being sufficient apertures in the second indexing member to communicate with the compartments in each of the rows;
said container comprising a circular member having a plurality of coaxially arranged circular walls spaced from one another by radially extending partitions to define a plurality of compartments;
and a central longitudinally extending tubular opening in the container, the compartments having inner ends communicating with said tubular opening.

4,334,618

STATIONERY HAVING SNAP-OPEN ENVELOPE WITH REMAILABLE PORTION

Eugene J. Buescher, Lake St. Louis, Mo., assignor to William R. O'Meara, Florrisant, Mo.

Division of Ser. No. 872,467, Jan. 26, 1978, Pat. No. 4,190,162, which is a continuation of Ser. No. 480,621, Jun. 19, 1974, abandoned. This application Sep. 18, 1979, Ser. No. 76,604
Int. Cl.³ B65D *27/06*
U.S. Cl. 206—623 **16 Claims**



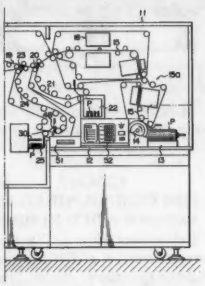
1. A mailing envelope comprising three sheets superimposed in facing relation, two of said sheets being front and back outer sheets of the mailing envelope with said front sheet having mailing address means thereon for mailing the mailing envelope, return address means on one of said three sheets, the third of said sheets being disposed between said two outer sheets, two of said sheets each having a tear line of perforations extending between a pair of opposite sides of the mailing envelope, said tear lines of perforations dividing the last named two sheets into left and right envelope portions separable from each other at said tear lines of perforations upon applying a force tending to separate said envelope portions when opening the mailing envelope, one of said envelope portions, after the mailing envelope is opened, including a part of one of said outer sheets and a part of one of the other of said three sheets with one of said parts of said one envelope portion being longer than the other of said parts of said one envelope portion to provide an end closure flap foldable over said other part for closing said one envelope portion, said one and other parts of said one envelope portion defining a return envelope which is usable to contain and mail an element therein, said mailing and return address means being so located relative to said tear lines of perforations that said mailing address means is essentially eliminated as a mailing address for said return envelope and said return address becomes the mailing address for said return envelope.

4,334,619

APPARATUS FOR PROCESSING PAPER SHEETS

Shigeo Horino, and Yoshiro Hashimoto, both of Tokyo, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 27, 1979, Ser. No. 98,328
Claims priority, application Japan, Nov. 30, 1978, 53-147266
Int. Cl.³ B07C *5/344*
U.S. Cl. 209—551 **8 Claims**



1. An apparatus for processing paper sheets comprising:
a supplying section adapted to receive a predetermined number of paper sheets to be processed said sheets being inserted into said supplying section as one lot;
a take-out and transfer means for removing and transferring paper sheets one after another from said supplying section;
detecting means for detecting paper sheets transferred by said take-out and transfer means;
discriminating means, connected to said detecting means, for sorting paper sheets at least into fit sheets and unfit sheets according to an output signal from said detecting means;
counting means for counting at least paper sheets determined by said discriminating means to be fit sheets;
sorting and transferring means for sorting paper sheets and transferring the individual sorted paper sheets in accordance with the result of discrimination by said discriminating means;
collecting sections for separately receiving respective paper sheets sorted by said sorting and transferring means said collecting sections including at least an unfit paper collecting section;
input means for manually inputting data representing the actual number of unfit paper sheets collected in said unfit paper sheet collecting section of said collecting sections;
checkup means for adding the number of fit paper sheets as counted by said counting means to the number of unfit paper sheets manually inputted via said input means and checking the resultant sum against a preset number corresponding to the number of sheets loaded into said supply section; and
display means for displaying the number of paper sheets inputted via said input means and the added result obtained from said checkup means.

4,334,620

KEY STORAGE RACK

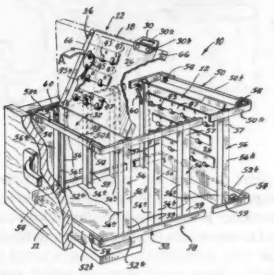
Mitchell L. Block, Highland Park, Ill., assignor to Block and Company, Inc., Wheeling, Ill.

Filed Sep. 29, 1980, Ser. No. 191,852
Int. Cl.³ A47F *7/00*
U.S. Cl. 211—13 **6 Claims**

1. A key control system for storing and indexing keys which includes a key rack support frame and at least one key rack for selective movable positioning in the frame or for removal from the frame, said system comprising, in combination:
a support frame including vertically spaced, generally rect-

angularly shaped, upper and lower casements, interconnected by at least a pair of elongated, key rack-receiving slide channel means arranged in a plane transverse to the upper and lower casements;

and a key rack adapted to be slidably disposed in the pair of slide channels and comprising a generally rectangularly shaped upper plate having opposed, planar end faces; a generally rectangularly shaped lower plate having opposed, planar end faces; said upper plate being pivotably



connected to said lower plate; and a plurality of key-supporting hooks secured to one face of said upper plate;

said upper plate of the key rack being pivotable relative to the lower plate, when the upper plate is withdrawn to a position above the upper ends of the channel means, to a position where the upper panel will engage means on the key rack support frame for holding the key rack in an elevated position which is inclined relative to the plane of the channels.

4,334,621

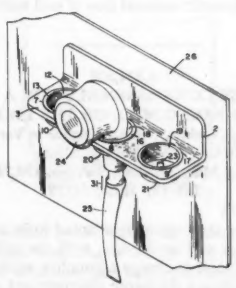
HOLDER

Girard M. Weber, 221 Dutch Sq., Columbia, S.C. 29210

Continuation of Ser. No. 956,615, Nov. 1, 1978, abandoned. This application Oct. 4, 1979, Ser. No. 81,834

Int. Cl.³ A47F *5/08*

U.S. Cl. 211—60 M **8 Claims**



1. A device, which attaches to a flat surface, for holding small objects comprising:

a. a vertical surface;

b. a horizontal surface physically secured to said vertical surface, said horizontal surface being constructed in a single solid piece on one plane;

c. an opening in said horizontal surface;

d. an insert operable to be secured within said opening in said horizontal surface, wherein said insert comprises an upper lip extending beyond said opening in said horizontal surface, and a ribbed outside surface comprising a plurality of ribs, extending below said horizontal surface, operable to press against said opening in said horizontal surface and to secure said insert in said opening; and

e. a bottom opening in said insert operable to secure any one of said small objects which is placed through said bottom opening;

wherein the depth of said bottom opening below said horizontal surface is adjustable by moving said insert vertically, wherein said insert is secured to said horizontal surface by different ribs of said plurality of ribs depending on the depth of said insert.

4,334,622

STAND FOR HOLDING AND SEALINGLY RETAINING INDIA INK DRAWING IMPLEMENTS

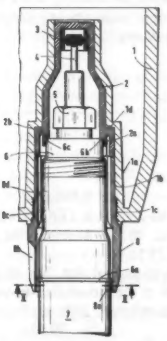
Otto Mutschler, Ludolf-Krehl-Str. 21, D-6900 Heidelberg, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,639

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849939

Int. Cl.³ A47F *7/00*

U.S. Cl. 211—69.5 **6 Claims**



1. A stand for holding and sealingly retaining a plurality of India ink drawing implements each comprising a tubular drawing point, a grip having a front end to which the tubular drawing point is attached and an annular bead on the grip rearwardly of the front end, the stand including a like plurality of sleeves for holding the drawing implements and for sealingly retaining the implements to prevent India ink therein from drying, a tubular packing in each sleeve, the tubular packing having an annular sealing lip in the interior thereof, a packing insert in the interior of the tubular packing, and a tubular clamping element inserted in each sleeve rearwardly of the tubular packing, the tubular clamping element having inwardly projecting camming means, the packing insert, the sealing lip and the camming means being arranged respectively for sealing and seating the drawing point, the front end of the grip and the annular bead on the grip when a respective one of the drawing implements is inserted into the clamping element and packing in a respective one of the sleeves.

4,334,623

RACK FOR THE DISPLAY AND STORAGE OF STEMMED DRINKING GLASSES

Frank Geary, 96 Moss La., Platt Bridge, Near Wigan, Lancashire, England

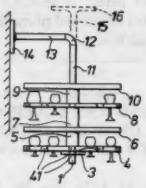
Filed Sep. 4, 1979, Ser. No. 72,321

Int. Cl.³ A47G *29/00*

U.S. Cl. 211—71 **9 Claims**

1. A rack for the display and storage of stemmed drinking glasses comprising at least one glass support means adapted to be mounted substantially horizontally and defining slots opening to the periphery thereof and adapted to accept the stems of

glasses and having at least one circular enlargement to form a seating for the bowls of glasses inserted by their stems into the slots with their bowls uppermost and their feet beneath the plate, and a cover arranged over each said support means and spaced therefrom by an amount sufficient to accomodate the bowls of stemmed drinking glasses in said slots during insertion, storage and removal of said drinking glasses, whereby said glasses can be horizontally inserted into and removed from said rack, and the bowls thereof are protected by said cover; and



securement means connecting said support means and cover, said securement means being adapted to fix said rack to a portion of a room.

4,334,624

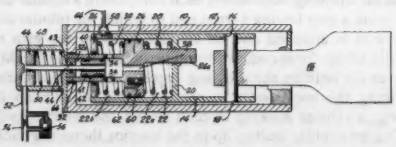
DRAFT GEAR LOCKING DEVICE

Peter J. Detmold, 40 St. Andrews Rd., Baie d'Urfe, Quebec, Canada (H9X 2V1)

Continuation-in-part of Ser. No. 41,827, May 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 900,164, Apr. 26, 1978, abandoned. This application Sep. 26, 1979, Ser. No. 79,051

Int. Cl.³ B61G *9/08, 9/16*

U.S. Cl. 213—43 **15 Claims**



1. A lock-out apparatus for shock absorbing draft gear on a railway car provided with a conventional single pipe fluid brake system, which draft gear has a housing adapted to be fixed to one end of the railway car and shock absorbing means in the housing to cushion shock on the coupler of the railway car at the one end, the shock absorbing means including at least one movable shock absorbing member operatively connected to the coupler and cushion means cooperating with the movable member to cushion shock; a lockout apparatus having a locking member slidably mounted in the housing for movement between locking and unlocking positions, piston and cylinder means for moving the locking member, and conduit means connecting the piston and cylinder means to the single pipe of the fluid brake system on the railway car whereby an increase in the pressure of the fluid in the brake line will automatically operate the piston and cylinder means to move the locking member to a locking position to prevent movement of the movable shock absorbing member and to thus lock out the draft gear whenever the train is fully assembled and running in a normal manner.

4,334,625

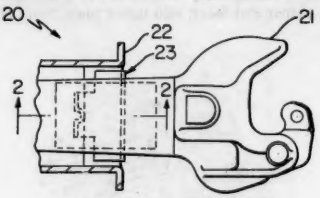
WEAR MEMBER FOR RAILWAY VEHICLE

Donald L. Kleykamp, Dayton, Ohio, assignor to Dayco Corporation, Dayton, Ohio

Filed Jun. 25, 1980, Ser. No. 162,864

Int. Cl.³ B61G *7/10, 5/00, 9/20*

U.S. Cl. 213—61 **12 Claims**



1. In a wear member for a railway vehicle wherein said vehicle comprises a pair of relatively movable components and said wear member is supported by one of said components and protects said components from wear during relative movement thereof; said wear member comprising; a metal support having a substantially planar sheet portion which has a continuous supporting surface and a surface opposite said supporting surface; an ultra high molecular weight polymeric material having an antifriction wear surface engageable by the other of said components and an inside surface engaging said supporting surface on a common interface; and means attaching said polymeric material to said support and supporting same against said supporting surface; the improvement in said attaching means comprising cooperating formed means in said sheet portion of said support and in said polymeric material at said interface which attach and interlock same together free of additional components, said cooperating formed means in said sheet portion comprising at least one displaced part of said sheet portion defining opening means therein and said cooperating formed means in said polymeric material comprising an integral mass of said polymeric material extending through said opening means, said polymeric material serving to embed said displaced part therein, and said integral displaced part embedded in said polymeric material cooperating with said integral mass to provide said attaching and interlocking of said support and polymeric material free of said additional components.

4,334,626

DISCHARGE CONE ASSEMBLY FOR A ROTARY GRINDING MILL OR THE LIKE

William J. Butler, Duluth, Minn., assignor to Vermillion Equipment & Supply Co., Inc., Hibbing, Minn.

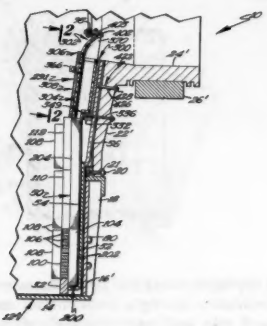
Filed Mar. 28, 1980, Ser. No. 134,740

Int. Cl.³ B02C *17/18*

U.S. Cl. 241—171 **23 Claims**

1. A discharge cone assembly adapted to be mounted inside a rotary grinding mill or the like, with the mill including at least first and second discharge assemblies, with the discharge assemblies including a discharge chamber and a grate for allowing access for the ground material in the interior of the mill into the discharge chamber, comprising, in combination: a first member including a discharge passageway having a first open end and a second open end, with the second open end of the first member being in ground material communication with the discharge chamber of the first discharge assembly; a second member including a discharge passageway having a first open end and a second open end, with the second open end of the second member being in ground material communication with the discharge chamber of the second discharge assembly; means for securing the first and second members in the mill; a third member comprising a nosepiece including an interior, a first end having a first opening, a second end having a second

opening, and an open unitary outlet, with the first open end of the first member being in ground material communication with the first opening of the nosepiece, with the first open end of the second member being in ground material communication with the second opening of the nosepiece, with the unitary outlet



discharging the ground material from the interior of the nosepiece out of the mill; and means for securing the nosepiece to the first and second members allowing removal of the nosepiece from the mill without unsecuring or removal of the first and second members from the mill.

4,334,627

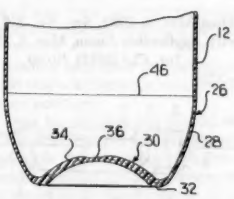
BLOW MOLDED PLASTIC BOTTLE

Suppayan M. Krishnakumar, Nashua, N.H., and John F. E. Pocock, Neu-Isenburg, Fed. Rep. of Germany, assignors to The Continental Group, Inc., New York, N.Y.

Continuation of Ser. No. 97,605, Nov. 27, 1979, Pat. No. 4,261,948. This application Mar. 24, 1981, Ser. No. 247,044

Int. Cl.³ B65D *1/02*

U.S. Cl. 215—1 C **5 Claims**



1. A blow molded plastic bottle for beverages, said bottle being of the type including a tubular body portion and an integral bottom structure, said bottom structure including an internal axially inwardly directed generally conical part and a generally arcuate cross-sectional axially inwardly opening base ring, said bottom structure being improved by said generally conical part and said base ring being reinforced by a plurality of circumferentially spaced radially extending ribs integrally formed on the interior of both said generally conical part and said base ring and bridging said base ring and terminating in said bottom structure, and said ribs forming means resisting thinning of said generally conical part and said base ring during blow molding of said bottle and providing for a greater wall thickness of said generally conical part and said base ring between said ribs than in a like bottle formed in the same blow mold with the same preform but without ribs.

4,334,628

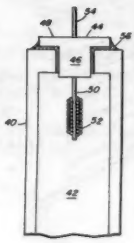
VACUUM-TIGHT ASSEMBLY

Carl F. Buhrer, and Alfred E. Feuersanger, both of Framingham, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 21, 1980, Ser. No. 209,162

Int. Cl.³ H01J *61/30*; F16D *1/00*; H05K *15/06*; H01B *17/06*

U.S. Cl. 220—2.1 R **10 Claims**



1. A vacuum-tight assembly comprising:

a high density polycrystalline ceramic body having a cavity; and

means for sealing said cavity from the atmosphere;

said ceramic body having a thermal coefficient of expansion between about 55×10^{-7}/°C. and 90×10^{-7}/°C.;

said means for sealing comprising

a sintered closure member formed from a molybdenum alloy containing between 2 and 70 atom percent titanium and between 0.1 and 5 weight percent of a metal selected from the group consisting of nickel, cobalt, copper and mixtures thereof; and

a sealing material interposed between said ceramic body and said closure member for providing a seal therebetween,

said closure member and said sealing material having thermal coefficients of expansion closely matched to the thermal coefficients of expansion of said ceramic body over a wide temperature range.

4,334,629

COUNTERBALANCE MECHANISM FOR INCUBATOR HOOD

Robert J. Koch, McFarland; Douglas D. Carden, Barneveld, and Michael H. Mackin, McFarland, all of Wis., assignors to Airco, Inc., Montvale, N.J.

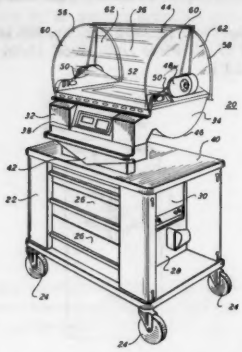
Filed Jan. 14, 1981, Ser. No. 225,089

Int. Cl.³ B65D *43/14*

U.S. Cl. 220—252 **4 Claims**

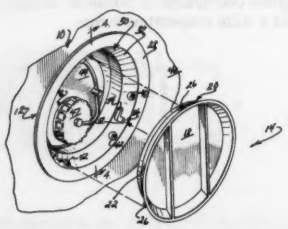
1. A counterbalance mechanism adapted to counteract the force of gravity acting upon a cylindrical hood, rotatable between open and closed positions of an infant incubator, said mechanism comprising a cam having a predetermined cam profile, said cam being fixed with respect to said rotatable hood, a cam follower carried by said rotatable hood and rotatable therewith, spring bias means of predetermined tension acting to force said cam follower against said cam profile, said cam follower thereby adapted to move along the said profile as

the hood is rotated, said cam profile and spring bias adapted to be formed such as to counteract the gravitational forces acting



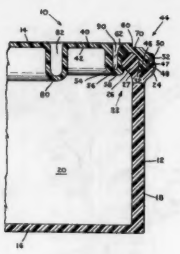
upon the hood by providing about an equal force in the opposite direction of the gravitational force.

4,334,630
HATCH COVER
Paul F. Bergin, 58471 Fir Rd., South, Mishawaka, Ind. 46544
Filed Jan. 26, 1981, Ser. No. 228,291
Int. Cl.³ B65D *41/06, 41/36*
U.S. Cl. 220—300 **3 Claims**



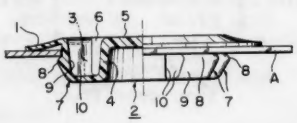
1. A hatch comprising a circular cover and a base plate, said cover including an inner face and an outer face, the perimeter of said cover being defined by a lateral surface, said base plate adapted for securement to a wall member and including a circumferential outer flange for mounting against said wall member, said base plate including a side wall defining in conjunction with said outer flange an opening into the base plate, said cover adapted to span said base plate opening, said cover lateral surface being juxtaposed with said base plate side wall when said cover spans said base plate opening, lock means for securing said cover to said base plate, said lock means including a plurality of co-operating interlocking pins and grooves, said pins carried by one of said base plate sidewall and said cover lateral surface, said grooves formed in the other of said base plate side wall and said cover lateral surface, said pins positioned to fit into and interlock with said grooves upon rotation of said cover relative to said base plate with the cover spanning said base plate opening.

4,334,631
COVER AND CONTAINER ASSEMBLY
Jose F. Ballester, GPO Box 4523, San Juan, P.R. 00936
Filed Nov. 24, 1980, Ser. No. 209,823
Int. Cl.³ B65D *41/16, 41/18*
U.S. Cl. 220—306 **6 Claims**



1. An improved cover and container assembly comprising:
(a) a container having a bottom wall and a cylindrically shaped side wall, said side wall having a first annular locking member projecting outwardly from a terminus thereof and a second annular locking member projecting inwardly therefrom and cooperatively defining an interlocking means; and
(b) a cover having a downwardly projecting annular locking member circumferentially formed thereabout, said cover having an outer exterior U-shaped wall member forming an annular groove having an outwardly directed abutting part on a bottom of said outer exterior U-shaped wall member, said outwardly directed abutting part cooperatively defining with said downwardly projecting annular locking member an interlocking means, said interlocking means of said container cooperatively engaging said interlocking means of said cover to provide a snap-lock fit to hermetically seal said cover to said container.

4,334,632
STOPPER FOR OPENING
Koji Watanabe, Fujisawa, Japan, assignor to Nifco Inc., Tokyo, Japan
Filed Mar. 2, 1981, Ser. No. 239,830
Claims priority, application Japan, Mar. 3, 1980, 55/26146[U]
Int. Cl.³ B65D *39/00*
U.S. Cl. 220—307 **1 Claim**

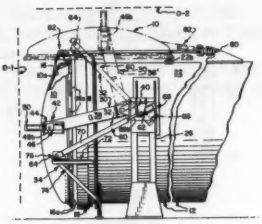


1. A stopper for plugging an opening formed in a panel, which comprises a flange portion for pressed contact with the surface of the panel and an insertion portion extended downwardly from the lower surface of said flange portion and adapted for insertion into the opening in the panel, said insertion portion being formed in the shape of a boss, being provided in the interior thereof with an annular groove opening into the upper surface of said insertion portion and giving rise to outer circumferential walls of a small thickness, said outer circumferential walls being provided with a plurality of internally hollowed engaging projections disposed in the radial direction, and the outer wall surfaces of said outer circumferential walls being provided with engaging claws adapted for fast engagement with the opening in the panel.

4,334,633
ARTICULATED DOOR

Henry J. Piegza, Clarence, N.Y., assignor to WSF Industries, Inc., Tonawanda, N.Y.

Filed Apr. 6, 1981, Ser. No. 251,170
Int. Cl.[3] B65D *43/14, 51/04*
U.S. Cl. 220—332 10 Claims



1. In a pressure vessel having a side wall and an opening formed in one end of said side wall, a door for closing said opening, said door being characterized as having a cavity intended to face inwardly of said vessel when said door is in closed position and defined by a concave inner surface bounded by a locking rim portion, a locking ring mounted on said side wall adjacent said opening for rotation between a locking position, wherein it is adapted to enclose and engage with said locking rim portion for locking said door in said closed position, and a release position, wherein it frees said locking rim portion for movement from within the confines thereof in a direction axially of said one end of said side wall, and means for mounting said door for movement successively between said closed position and a partially open position, wherein said door is spaced axially from said one end of said side wall with said locking rim portion removed from within the confines of said locking ring and said door extends generally transversely of said side wall, and between said partially open position and open position, wherein said inner surface of said door is arranged to face relatively towards said side wall with said door having been swung through an arc of approximately 90 degrees from the position it assumes when in said closed position, the improvement for minimizing the clearance distances between obstructions spaced from said one end of said side wall and transversely of said side wall required to permit movement of said door between said closed and open positions, wherein said means for mounting said door comprise in combination:

guide means for guiding said door for movement essentially lengthwise of said side wall between said closed position and said partially open position;

a pair of support arms having first and second ends;

a pair of control arms having first and second ends;

a pair of bearing means for mounting said first ends of said support and control arms for pivotal movement about a pair of parallel axes positionally fixed relative to said side wall and extending transversely thereof;

a pair of other bearing means for mounting said second ends of said support and control arms for relative pivotal movement about another pair of parallel axes positionally fixed relative to said door and disposed parallel to the first said pair of axes;

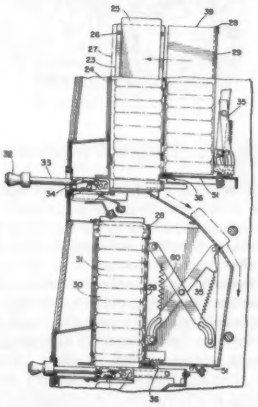
means to effect simultaneous relative separating movements of said other bearing means relative to said bearing means for moving said door along said guide means between said closed and partially open positions, said bearing means and said other bearing means associated with said support arms and control arms being spaced apart first and second relative distances when said door is disposed in said closed and partially open positions, respectively, the last said means including means for selectively retaining said bearing means and said other bearing means spaced apart at said second relative distance; and

means for moving said door from said partially open position into said open position, as an incidence to which said bearing means and other bearing means are retained in said second relative distance and said first ends of said support and control arms undergo pivotal movement relative to said side wall about the first said pair of axes and said second ends of said support and control arms undergo pivotal movement relative to said door about said other pair of axes.

4,334,634
CIGARETTE DISPENSER ADAPTOR

Jose R. J. Fernandez, Box 112, Carolina, P.R. 00630, and Fernando B. Gonzalez, Calle 6 Bloque L-3, Urb. Cupey Gardens, R. P., P.R. 00928

Filed Sep. 30, 1980, Ser. No. 192,240
Int. Cl.[3] B65G *59/00*
U.S. Cl. 221—131 5 Claims



1. An apparatus for adapting a conventional mechanical cigarette vending machine, in which the machine includes a plurality of magazines for containing primary stacks and reserve stacks of cigarettes and pusher plates to move said reserve stacks forward, to vend half packs of cigarettes said apparatus comprising:

(a) a generally elongate L-shaped element having a short narrow panel and a longer wider panel said short panel having downwardly extending ears on the top thereof, said longer wider panel having the same width as the length of a pack of cigarettes, said wider longer panel having a flange extending the full length of thereof on one side and extending from the lower end of the shorter narrower panel the balance of the length of said L-shaped element;

(b) a second elongate flat U-shaped element, the front panel of said element having narrow L-shaped flanges on either side thereof, said L-shaped flanges having at least four small clips punched out of the portion of the L-shaped flanges parallel to the flat panel, the main portion of the panel having the same length as the width of a pack of cigarettes, a portion of the panel extending a short distance above said L-shaped flanges, a part of the panel extending below said L-shaped flanges being formed into a flange that exends forward a short distance from the surface of the panel and having a portion bent downwardy parallel to the panel;

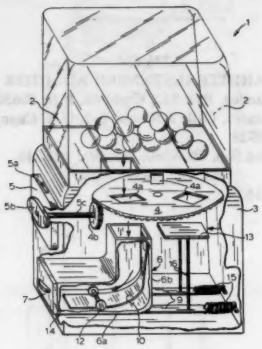
(c) a clip element having three prongs extending laterally in side-by-side relationship, the outer two of these prongs being bent slightly at the forward end thereof, the clip having a flange extending the full width thereof.

4,334,635

MACHINE FOR DISPENSING BULK MERCHANDISE

Martin Grab, Hildastrasse 6, D-6921 Michelfeld, Angelbachtal, Fed. Rep. of Germany

Filed Jun. 16, 1980, Ser. No. 159,645
Int. Cl.[3] B65H *3/00*; G07F *11/16*
U.S. Cl. 221—194 3 Claims



1. A machine for dispensing bulk merchandise, which comprises

(a) a housing defining a bottom discharge opening,

(b) a hopper storing the bulk merchandise,

(c) a merchandise dispensing chute mounted in the housing and extending between the hopper and the discharge opening, the chute comprising

(1) a substantially horizontally extending wall part and a merchandise dispensing portion attached thereto, and

(2) a substantially vertically extending wall part extending upwardly from the horizontally extending wall part, the dispensing portion being movable through the discharge opening between a retracted and a forward, dispensing position, and the vertically extending wall part being pivotally connected to the horizontally extending wall part for movement therewith upon movement of the merchandise dispensing portion,

(d) a merchandise distributing device arranged between the hopper and the chute for delivering the bulk merchandise from the hopper into the chute,

(e) a cut-off slide movable with the merchandise dispensing portion between a retracted position and a forward, cut-off position, the slide being arranged between the merchandise distributing device and the dispensing chute for cutting off delivery of the merchandise into the chute when the merchandise dispensing portion with the horizontally extending wall part is moved into the forward position, and

(f) a stop arranged to prevent the horizontally extending wall part from projecting beyond the discharge opening when the same is moved into the forward position wherein the merchandise dispensing portion projects therebeyond.

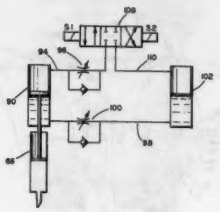
4,334,636

APPARATUS FOR HANDLING GASKET-FORMING MATERIAL

William A. Paul, 1808 Parkside Blvd., Toledo, Ohio 43607

Filed Dec. 27, 1979, Ser. No. 107,548
Int. Cl.[3] G01F *11/00*
U.S. Cl. 222—642 11 Claims

1. Apparatus for supplying gasket-forming material to shaping means for shaping the material into a gasket configuration, said apparatus comprising a cartridge of gasket-forming material having dispensing means at one end, a cartridge holder having means at one end to receive the cartridge dispensing means, a plunger at the other end of said cartridge holder and having a plunger rod extending outwardly therefrom, a fluid-operated cylinder aligned with said plunger rod, said cylinder having a piston therein, said piston being connected to said plunger rod, means including valve means for supplying a first fluid under pressure to the blind end of said cylinder, a reservoir communicating with the rod end of said cylinder for



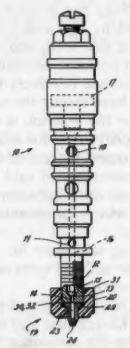
supplying a second fluid under pressure to the rod end of said cylinder and for receiving the second fluid from the rod end of said cylinder, and means including said valve means for supplying the first fluid under pressure to said reservoir above said second fluid to supply the second fluid back to the rod end of the cylinder.

4,334,637

EXTRUSION NOZZLE ASSEMBLY

Robert G. Baker, Buford, and Dario J. Ramazzotti, Atlanta, both of Ga., assignors to Nordson Corporation, Amherst, Ohio

Filed Aug. 25, 1980, Ser. No. 180,803
Int. Cl.[3] B60D *5/62*
U.S. Cl. 222—146 H 6 Claims



1. An extrusion nozzle adapted to be removably secured to the end of a heated hot melt adhesive dispenser of the type having a valve contained therein, said nozzle comprising

a heat insulative holder having connector means formed thereon for removably securing said holder to said dispenser, said holder having an axial bore extending therethrough,

a heat transmitting metal insert, said insert having an axial passage extending therethrough terminating in an outlet orifice, said insert having a generally tubular section and a radial flange extending outwardly from said tubular section at one end remote from said outlet orifice, said insert flange having a flat end surface adapted to be placed in metal to metal surface contact with a flat heated surface of said dispenser when said holder is secured to said dispenser so as to facilitate transfer of heat from said flat heated surface of said dispenser to said insert flange,

said flange and the major portion of said tubular section of

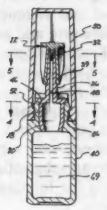
said metal insert being contained within said bore of said holder so that heat transferred from said dispenser to said flange of said insert is readily transferred to the outlet orifice end of said insert with a minimum of heat loss, and resilient sealing means contacting said flange of said insert for forming a seal between said insert and said dispenser.

4,334,638

CHILD PROOF DISPENSER

Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.

Filed Feb. 7, 1980, Ser. No. 119,635
Int. Cl.³ B67B *5/00*; B67D *5/32*; B65D *55/02*
U.S. Cl. 222—153 **12 Claims**



1. A two phase lock for securing a cap to the hollow neck section of a container, said lock comprising in combination:

(a) lug means disposed about the hollow neck section of the container, said lug means being located upon and extending radially outwardly of the exterior surface of the hollow neck section;

(b) a flexible side wall formed as part of the cap for circumscribing the hollow neck section of the container;

(c) flange means disposed within said side wall for disengageably engaging said lug means upon angular displacement of the cap relative to the container, said flange means being located upon and extending radially inwardly of said side wall and positionally disposed upon said side wall to urge the lower edge of the cap against a shoulder of the container extending about the hollow neck section and impart a compressive force to the portion of the cap intermediate said flange means and the lower edge of the cap on engagement with said lug means; and

(d) key means and keyway means disposed intermediate said side wall common to said flange means and the container for precluding rotation of the cap relative to the container, said key means and said keyway means being laterally displaceable relative to one another by flexing of said sidewall to effect disengagement of said key means from said keyway means and permit angular displacement of the cap relative to the container, said keyway means including at least one channel disposed upon the hollow neck section and extending parallel to the longitudinal axis of the hollow section and including an opening, said key means including at least a rib extending from said sidewall for engagement with said opening of one of said channels;

whereby, the cap may be removed from the container upon rotation of the cap relative to the container after disengagement of said rib with said channel.

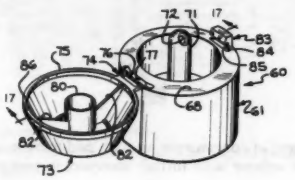
4,334,639

CHILD-RESISTANT DISPENSING CLOSURE

Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Continuation-in-part of Ser. No. 108,642, Dec. 31, 1979, abandoned. This application May 8, 1980, Ser. No. 143,819
Int. Cl.³ B65D *47/02*
U.S. Cl. 222—153 **11 Claims**

1. A child resistant dispensing closure for a container fabricated of flexible material, said closure comprising: a cup shaped body member adapted for attachment to a container, said body member having a top surface bounded by a circumferential edge, a lid member overlying said body member, a nozzle formed integrally with said body member and forming a dispensing orifice, a cover for closing the orifice in said nozzle being formed on said lid member, a flexible hinged web connecting said lid member to said body member and providing for angular swinging movement of said lid member relative to said body member from a closed position in which said cover is engaged with said nozzle and a lower surface of said lid member engages the top surface of said body member with no portion of said lid member extending beyond said circumferential edge of said body member, said web also providing for lateral translatory movement in a direction transverse to



the direction of said angular movement from said closed position relative to said body member to an opening position wherein an edge of said lid member extends beyond the circumferential edge of said body member while said nozzle and cover remain engaged in closed position, said nozzle being connected to said body member by flexible portions to thereby resiliently urge said lid in a return direction from said opening position to said closed position, and cooperating catch means on said body and lid members engaged when said lid member is in a closed position and being partially disengageable upon said lateral movement of said lid member from said closed position to said opening position, whereby said edge of said member affords a grip for disengaging said catch means and swinging said lid member to a fully open position.

4,334,640

EXCHANGEABLE CONCENTRATE CONTAINER FOR BEVERAGE DISPENSING MACHINES

Garardus J. J. van Overbruggen, Vianen; Richard A. van Beaumont, Harmelen, and Henricus A. C. Thijssen, Son, all of Netherlands, assignors to Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V., Joure, Netherlands

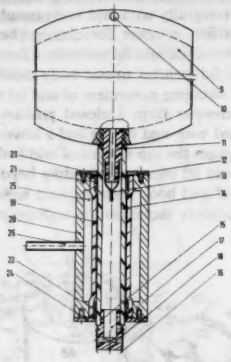
Continuation of Ser. No. 930,538, Aug. 2, 1978, abandoned. This application Oct. 14, 1980, Ser. No. 196,564
Claims priority, application Netherlands, Aug. 8, 1977, 7708746; Oct. 6, 1977, 7710961
Int. Cl.³ B65D *37/00*
U.S. Cl. 222—207 **1 Claim**

1. An apparatus for storing and transporting coffee concentrate and dispensing increments of the concentrate comprising:

an exchangeable disposable dispensing unit including a reservoir containing coffee concentrate and having a rigid neck with an open end defining an outlet, means on the open end forming a first non-return valve, an inner collapsible tube disposed about said neck and forming with said reservoir an integral unit for receiving concentrate from said reservoir via said first non-return valve, said tube extending longitudinally and being of resiliency so as to be collapsible, and a one-way outwardly opening valve on the free end of said inner tube,

means for dispensing a metered amount of concentrate including an outer collapsible tube disposed about said inner tube, a housing mounted about said tubes and spaced from said outer tube to form an annular space, and a pipe for

supplying fluid to said space at a pressure in the range of 1–6 atomospheres to collapse said tube and dispense an



increment of concentrate wherein said increment does not vary in volume with further increases in pressure.

4,334,641

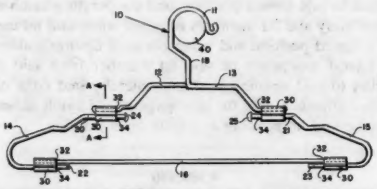
ADJUSTABLE HANGER

William Narcum, 2303 Grove La., Cary, Ill. 60013

Filed Feb. 19, 1980, Ser. No. 122,579

Int. Cl.³ A47J *51/13*

U.S. Cl. 223—94 **5 Claims**



1. An adjustable garment hanger comprising, in combination, a support member including a suspension hook portion, a pair of angle members attached to said support member, and a connecting rod attached to said angle members, wherein:

(a) said pair of angle members is movable relative to or from one another;

(b) each of said angle members is adjustably attached to said support member and said connecting rod by a duplex sleeve connector;

(c) each of said angle members has an oblique arm and a base arm wherein said oblique arm is attached to said support member and said base arm is attached to said connecting rod;

(d) an end portion of said oblique arm is parallel to said base arm and parallel to a horizontal axis of said hanger; and

(e) and said support member, said connecting rod, and said angle members are in substantially the same plane.

5. An adjustable garment hanger comprising a support member, a pair of angle members slidably connected to said support member, and a connecting rod slidably connected to said angle members, wherein:

(a) said support member is comprised of a suspension hook portion and a pair of downwardly diverging leg members which form an angle substantially the same as an angle of a neck and shoulder portion of a garment;

(b) a first set of duplex sleeve connectors, said sleeve connectors being formed in a substantially "S" configuration so as to have two loop portions, a first loop portion of said sleeve connector being fixedly attached to each of said leg members of said support member;

(c) each of said pair of angle members being substantially "V" shaped so as to form two arm members, one end of a first arm member of said angle member being slidably engaged in a second loop portion of said sleeve connectors;

(d) said connecting rod being slidably engaged with said angle members by having each end of said connecting rod fixedly attached to one loop portion of a second set of duplex sleeve connectors, and the second loop portion of each of said duplex sleeve connectors being slidably engaged with a second arm member of each of said angle members further wherein:

(i) said first arm member being an oblique arm and second arm member being a base arm;

(ii) an end portion of said oblique arm being substantially parallel to said base arm and substantially parallel to a horizontal axis of said hanger;

(iii) said oblique arm having a second portion substantially parallel to said end portion;

(iv) said second portion and said end portion being separated by an angle portion; and

(v) said angle members, said support member, and said connecting rod being substantially co-planar; and

(e) a stopping means for limiting movement on each of said angle members.

4,334,642

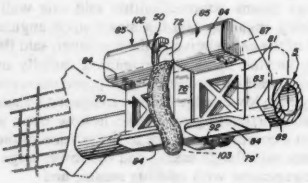
ATHLETIC EQUIPMENT MOUNTING APPARATUS

Franz Reisch, Freeport, Ill., assignor to Omega Products, Downers Grove, Ill.

Filed Feb. 16, 1979, Ser. No. 12,856

Int. Cl.³ B62J *7/00*

U.S. Cl. 224—37 **4 Claims**



1. An apparatus for mounting athletic equipment to the frame of a wheeled vehicle, comprising:

a generally rigid body portion including a flattened surface for engaging and supporting said carried athletic equipment, retaining lip means for preventing said equipment from slipping from said surface and selectively operable biasing means for engaging said equipment for securely holding the same in contact with said body, said selectively operable biasing means comprising a continuous length of generally resilient material including at least one biasing portion and at least one extension extending transversely across said surface, said extension means selectively movable between a clamped position engaging the equipment and a released position facilitating removal of said equipment therefrom, said biasing portion comprising a cylindrically shaped coiled length of said resilient material and said extension comprising a generally transversely oriented concave arcuate section of said length; and

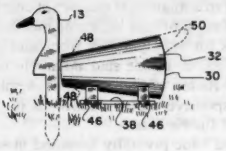
means for removably securing said body portion to the frame of a wheeled vehicle comprising a length of banding of generally rigid material possessing a degree of deformability and screw means for urging the ends of said banding toward each other, a flattened portion for engaging said flattened surface and including a bore for receiving said screw means and a depending curved portion for contacting said frame.

4,334,643

GOOSE DECOY BACK PACK

Thomas E. Farmer, P.O. Box 748, Galveston, Tex. 77553

Filed Jul. 11, 1980, Ser. No. 168,936
Int. Cl.[3] A01M *31/06*; A45F *3/04*
U.S. Cl. 224—153 6 Claims



1. A back pack device for storing and transporting a plurality of goose decoy units, comprising a back pack unit which is of a size and shape to serve as a body of a goose decoy unit in a free-standing position, together with

a head unit that serves as a head section of a said goose decoy unit, in which

the back pack unit is formed with a container body in the form of a section of sheet, rolled substantially in the shape of a conic section, with said container body open at least at the larger end of said conic section, and in which

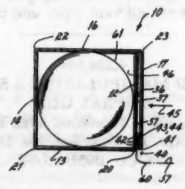
a pair of longitudinally extending spaced apart bars are mounted externally to the container body via spacer means so that each of said bars extends substantially parallel to the axis of the conic section of the container body at a distance from the container body, so as to serve as back pack supports.

4,334,644

DISPENSER CARTON

Donald P. Hauser, Cincinnati, Ohio, assignor to The C. W. Zumbiel Co., Cincinnati, Ohio

Filed May 19, 1980, Ser. No. 151,188
Int. Cl.[3] B26D *1/02*
U.S. Cl. 225—43 2 Claims



1. A carton comprising:

a panel having structure that defines a cutting edge,

a finger flap formed out of said panel, adjacent said cutting edge, said finger flap being connected on a fold line interiorly of said panel, and said finger flap being configured to preclude significant contact of said finger flap with sheet material being torn through use of said cutting edge during the tearing step,

structure defining a notch in the cutting edge of said panel, said finger flap being positioned within said notch, and

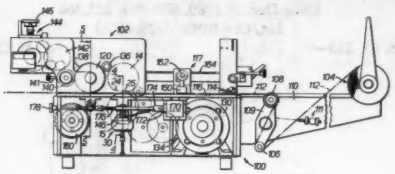
a backing strip which partially defines said cutting edge, said backing strip being connected to said panel at least in the area of said notch for maintaining a continuous cutting edge across said notch.

4,334,645

WEB INDEXING APPARATUS AND OVERPRINTING MACHINE

Harry Cunnington, Boston, England, assignor to Norcros Investments Limited, Reading, England

Filed Jul. 15, 1980, Ser. No. 169,176
Claims priority, application United Kingdom, Jul. 19, 1979, 7925235
Int. Cl.[3] B65H *17/26*
U.S. Cl. 226—137 8 Claims



1. In web-indexing apparatus,

a first rotary member having an interrupted periphery defining a step,

a second rotary member arranged to define a web nip in cooperation with the first rotary member,

means mounting one of said rotary members for movement towards and away from the other rotary member so that when the members are brought into proximity with the interrupted periphery opposite the periphery of the other member, the step of the first rotary member will subsequently engage the web and the periphery of the second rotary member at a predetermined instant to thereby advance the web,

solenoid means operative to bring the rotary members into and remove them from their cooperating, nip-forming, position,

switch means operable in dependence upon the operational cycle of the apparatus to change the condition of the solenoid, and

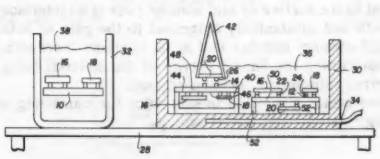
photo-electric cell means effective to change the condition of the solenoid in dependence upon a predetermined location detected on the advancing web.

4,334,646

METHOD OF SOLDER REFLOW ASSEMBLY

Henry J. Campbell, Melbourne Beach, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Apr. 17, 1980, Ser. No. 141,100
Int. Cl.[3] B23K *1/12, 1/02*; H01L *21/60*
U.S. Cl. 228—180 A 15 Claims



1. A method of attaching and aligning elements on a substrate comprising:

providing a metallic pattern on a planar surface of a substrate;

providing a metallic pattern on an element;

immersing said substrate in a hot liquid bath having a temperature sufficient to melt said metallic pattern;

after said metallic pattern on said substrate has melted, immersing said element in said bath and positioning said element with its metallic pattern on the metallic pattern of

said substrate without traversing said planar surface of said substrate so that the metallic pattern of said substrate and said element are aligned solely by capillary action of said melted metallic patterns; and

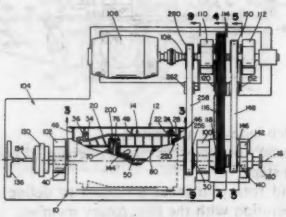
removing said assembled substrate and element from said bath to cool.

4,334,647

CENTRIFUGES

Edward S. Taylor, Lincoln, Mass., assignor to Bird Machine Company, Inc., South Walpole, Mass.

Filed Dec. 3, 1980, Ser. No. 212,364
Int. Cl.³ B04B *1/20, 9/10*
U.S. Cl. 233—7 **43 Claims**



1. In a centrifuge having a bowl with an annular treating zone within the outer portion of said bowl,

means for rotating said bowl about an axis for forming material within said zone into an annular pool to subject material in said pool to centrifugal force treatment,

feed means for supplying material flowable as a liquid to be treated to said annular treating zone, and

discharge means for discharging material flowable as a liquid from said treating zone and said bowl while said bowl is rotating,

the improvement for conserving energy wherein at least one of said feed means and said discharge means comprises:

a power exchange rotor mounted for rotation about an axis and provided with at least one material flow direction changing channel member spaced from the rotor axis less than the maximum radius of said bowl in the area of said treating zone,

said channel member constructed and arranged to guide flow of material therethrough from an inlet end to a discharge end while changing the direction of flow of said material therein at least about 90 degrees in a manner to effect energy transfer from one of said material and rotor to the other with at least about 70 percent efficiency,

transfer means arranged to direct transfer of material between said annular pool in said treatment zone and one end of said channel member, along a path which is substantially tangential to the surface of said annular pool at its interface therewith and substantially tangential to the path of rotation of said channel member end at its interface therewith, while maintaining the kinetic energy of the material being transferred substantially unchanged; and

power means connected to said rotor for translating said energy transfer into power saving.

4,334,648

AIRFLOW LIMITER AND MEASUREMENT DEVICE

Randy L. Buth, Rogers, and Robert A. Essig, Plymouth, both of Minn., assignors to McQuay-Perfex Inc., Minneapolis, Minn.

Filed Oct. 27, 1980, Ser. No. 200,960
Int. Cl.³ F24F *7/06*
U.S. Cl. 236—49 **6 Claims**

5. An air flow control system for an air conditioning system for maintaining the temperature of a space comprising, in combination:

a chamber extending from an inlet to an outlet for flow of conditioned air at superambient pressure from said inlet through said outlet to said space;

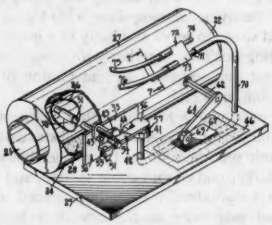
a damper in said chamber actuable to vary the rate of said flow between maximum and minimum values, said damper including a shaft extending outside said chamber and carrying an actuating lever;

means outside said chamber, including an inflatable member having inlet and venting openings, for engaging said actuating lever to actuate said damper in accordance with the state of inflation of said inflatable member;

fluidic means for supplying air from said chamber to said inlet opening, to inflate said inflatable member, and for enabling deflation of said inflatable member;

condition responsive means connected in controlling relation to said fluidic means;

an unbalanced vane pivotally mounted in said chamber for angular movement from an initial position in accordance



with the rate of said flow, including a shaft extending outside said chamber;

a flapper valve comprising a seat connected to said venting opening and a flapper arm pivotally movable into and out of sealing engagement with said seat to close and open said valve;

means mounting said flapper arm for normally free rotary movement of said shaft of said vane with respect thereto;

a radial flange extending axially of said shaft along said flapper arm;

a lost motion member rotatable on said shaft and having a cog extending axially for engagement with said flange upon relative rotation between said member and said arm; and

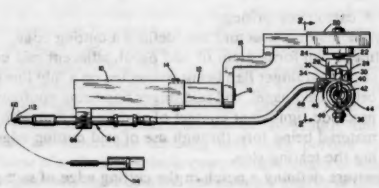
means adjustably fixing the rotative position of said lost motion member to said shaft such that said cog comes into engagement with said flange at a predetermined point in the movement of said vane from said initial position.

4,334,649

APPARATUS FOR MANIPULATING A SPRAY HEAD OF A SPRAY GUN

Richard A. Dooley, 400 S. Westwood Ave., Toledo, Ohio 43609

Filed Apr. 18, 1980, Ser. No. 141,298
Int. Cl.³ B05B *15/08*
U.S. Cl. 239—587 **7 Claims**



1. Apparatus for manipulating the spray from a spray gun relative to a workpiece, said apparatus comprising a spray head, means for supporting said spray head for rotatable movement about a central axis, said spray head having means for

emitting a spray of coating material in a noncircular pattern, and means for rotating said spray head about the central axis, said rotating means, comprising driven means connected to said spray head and rotatable therewith, rotatable drive means rotatably supported near said spray head for rotating said driven means when said rotatable drive means is rotated, and means for rotating said rotatable drive means comprising a housing mounted on said spray gun and moveable therewith, a rotatable elongate member rotatably carried by said housing and connected to said rotatable drive means, a longitudinally moveable member slidably carried by said housing and having means engagable with said elongate member to cause said elongate member to rotate when said longitudinally moveable member moves longitudinally, a flexible tubular shaft extending at least partly through said longitudinally-moveable member and received over said elongate member as said shaft and said longitudinally-moveable member move in said housing toward said rotatable drive means, and remotely located means for moving said flexible shaft longitudinally.

4,334,650
SHREDDING MACHINES

John P. Hardwick, 50 Aldelaide St., Crewe, Cheshire CW1 3DT; Michael J. Pezet, 17 Woodside Grange, Quorn, Leicestershire, both of England; Asadollah A. Sarvestany, S. Danshgah Ave., Mestah Alley No. 28, Tehran, Iran, and Dayananda Satharasinghe, 204J Block B, Clementi Rd., Singapore, Singapore (5)

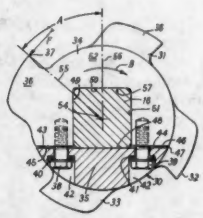
PCT No. PCT/GB79/00110, § 371 Date Mar. 5, 1980, § 102(e) Date Mar. 4, 1980, PCT Pub. No. WO80/00129, PCT Pub. Date Feb. 7, 1980

PCT Filed Jul. 4, 1979, Ser. No. 190,881

Claims priority, application United Kingdom, Jul. 5, 1978, 28953/78

Int. Cl.³ B02C *18/18*

U.S. Cl. 241—236 **9 Claims**



1. A cutter for a rotary shredding machine comprising a generally disc-like body, the body defining a coaxial shaft aperture therethrough adapted to accommmodate a shaft and defining a cutting axis, said body including a plurality of cutter body members and releasable fastening means for holding the body members together, at least one of said body members having at least one radially projecting peripheral tooth having a cutting edge along a leading edge thereof, each cutter body member having two first surface portions extending chordally from the body periphery and joined by a second surface portion adapted for engaging a shaft, said second surface portions together defining the shaft aperture, and each said first surface portion being juxtaposed with, but spaced from, a parallel, corresponding said first surface portion of the next adjacent body member thereby to permit limited tilting movement of said toothed body member circumferentially about the cutter axis with simultaneous momentary deformation of that body member when a sufficiently high impact force is applied to this tooth, the said fastening means being constructed and arranged to permit such circumferential tilting.

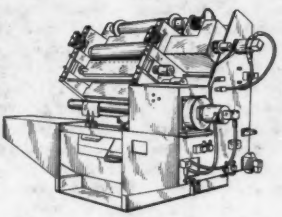
4,334,651
AUTOMATIC HYDRAULIC ROLL WINDER

Charles A. McKinnon, 60 Woodland Hills, Tuscaloosa, Ala. 35405

Filed Jun. 20, 1980, Ser. No. 161,378

Int. Cl.³ B65H *19/20, 17/02*

U.S. Cl. 242—56 R **9 Claims**



1. In a machine for winding sheet material into a product roll:

a guide roller means,

a pair of pull roller means,

a sheet severing means including a knife and an anvil to cut said sheet to produce a back end and a front end thereof,

a sheet guide means,

a mandrel means with a sheet securing slot means incorporated therein and a pair of collapsible plates mounted thereon, whereby rotation of said mandrel will form said sheet into a product roll,

said sheet guide means directing the front end edge cut by said knife into said slot means on said mandrel,

means for retaining the back end edge cut by the knife against said product roll following the cut by the knife during deceleration of the mandrel for the removal of the product roll, and

means for ejecting said product roll from said mandrel;

the alignment of the aforesaid means being such that the sheet material is maintained with the supply source of such sheet material so as to provide minimum bending of and minimum contact with said sheet material on its way to the mandrel.

4,334,652
EXPANDIBLE DEVICES FOR INTERNALLY GRIPPING CORES OR THE LIKE

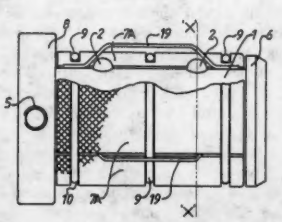
David Blackburn, 10, The Finches, Sittingbourne, Kent, ME10 4PY, England

Filed Nov. 6, 1979, Ser. No. 91,857

Claims priority, application United Kingdom, Nov. 8, 1978, 43644/78; Jan. 10, 1979, 7900829

Int. Cl.³ B65H *75/24*

U.S. Cl. 242—72 R **16 Claims**



1. A-self-expandible device for internally gripping hollow cores or the like to impart torque thereto; said device comprising a body member, a cylindrical structure surrounding the

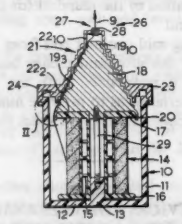
body member for effecting frictional drive contact with a hollow core, the body member and the cylindrical structure being relatively rotatable about an axis of the device, the body member and the cylindrical structure having curvilinear confronting surfaces, the cylindrical structure being composed of a plurality of jaw segments, means for retaining the jaw segments on the body member, balls between the confronting surfaces and slender elongate, arcuate circumferential grooves formed in one of the confronting surfaces in registry with the balls, wherein each groove has a tapered depth which varies around the axis of rotation and is described with a radius of curvature similar in magnitude to that of the other confronting surface and the balls are positionally secured in relation to the other confronting surface to locate in said grooves; wherein rotation or relative partial rotation between the cylindrical structure and the body member causes shallower regions of the grooves to engage with the balls to move the jaw segments progressively outwardly from the body member to effect said frictional drive contact with the hollow core.

4,334,653

FILAMENT TENSIONING APPARATUS

Geoffrey E. Whellams, 3 Spruce Ave., Greenstead, Colchester, Essex, England

Filed Mar. 25, 1980, Ser. No. 133,840
Int. Cl.³ B65H *49/00*
U.S. Cl. 242—129.8 **13 Claims**



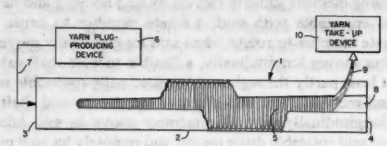
1. A device for imparting a tension to wire drawn from a reel, which device comprises holding means for holding a reel of wire, first and second circular tensioning elements, and support means for supporting said elements in a relatively spaced disposition to lie adjacent one end of a reel held by said holding means, each of said tensioning elements having at least one annular surface which said annular surfaces on said two elements co-operate with each other thereby to define a non-linear passage of circular form between said elements and along which wire may pass generally radially inwardly, said support means supporting both of said elements with said annular surfaces substantially co-axial with and adjacent one end of a reel held by the holding means and at least one of said elements having a central aperture through which wire drawn from the reel and passing radially inwardly through said passage may leave the device, whereby the wire wound on a held reel may be drawn from the reel to pass generally radially inwardly along said passage there to be constrained by said annular surfaces of said tensioning elements to follow a non-linear path and out of said aperture, said non-linear path imparting tension to the wire and the wire being able to enter said passage at any point around the circular periphery thereof as the wire comes off a held reel.

4,334,654

APPARATUS AND METHOD FOR CONTROLLING THE TENSION ON A YARN BUNDLE WITHDRAWN FROM A MASS OF COMPACTED YARN

Elbert K. Warren, Candler, and William D. Porter, Asheville, both of N.C., assignors to Akzona, Incorporated, Asheville, N.C.

Filed May 13, 1980, Ser. No. 149,546
Int. Cl.³ B65H *59/10*
U.S. Cl. 242—147 R **31 Claims**



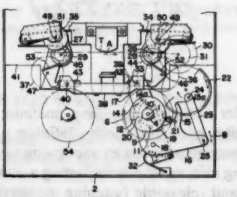
1. An apparatus for controlling the tension on yarn withdrawn from a mass of compacted yarn within a confined space which comprises a yarn guide means having a tubular cylindrical wall portion defining a confined space for guiding and for accumulating a compacted mass of yarn therein, an inlet opening for entry of the compacted mass of yarn into one end of the confined space and an outlet opening for allowing withdrawal of the yarn in the form of a yarn bundle from the confined space; said outlet opening being an elongated slot that is provided in the cylindrical wall portion of the yarn guide means and that applies tension to the yarn bundle being withdrawn from the confined space, said slot having a preselected configuration so that the slot provides means for varying the tension applied to the yarn bundle and for varying the density of the yarn bundle as the yarn mass moves from one end of the confined space to the other end.

4,334,655

AUTOMATIC TAPE FEEDING DIRECTION REVERSING DEVICE IN A TAPE RECORDER

Kyohei Naito, Tokyo, Japan, assignor to Shinwa Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 31, 1980, Ser. No. 135,916
Claims priority, application Japan, Apr. 3, 1979, 54/40187
Int. Cl.³ B65H *59/38;* G03B *1/02;* G11B *15/13*
U.S. Cl. 242—191 **4 Claims**



1. An automatic tape feeding direction reversing device in a tape recording comprising: a tape winding power source; a reel support (**3**) rotated by said tape winding power source; a detection disk (**9**) mounted on said reel support, said detection disk being adapted to rotate with the reel support when the tape is being fed and to stop rotating together with the reel support when the tape winding is completed; a reversing lever (**17**); a movable shaft (**18**) on said reversing lever; an actuator (**16**) which is oscillated about said movable shaft by the said power source and which, when said disk stops rotating, is brought into engagement with said detection disk and then moved together with said movable shaft about the engaging point between said disk and said actuator; said reversing lever being connected through said movable shaft to said actuator and being turned by the displacement of said movable shaft; and a

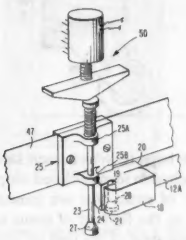
reversing mechanism (38, 44, 45) connected with and actuated by the reversing lever to reverse the tape winding direction.

4,334,656

AUTOMATIC TAPE THREADING APPARATUS FOR MAGNETIC TAPE TRANSPORTS

Roy P. Crawford; Paul A. Gilovich, both of Saratoga, Calif., and David H. McMurtry, Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,733
Int. Cl.³ G03B *1/04;* G11B *15/32*
U.S. Cl. 242—195 8 Claims



1. In combination with a web transport which transfers elongated flexible web material wound on a supply reel to a web take-up reel having a hub for receiving said material over a predefined nonlinear web path which includes a web processing station,

an automatic threading apparatus for moving a leader block attached to the leading end of the web material wrapped on said supply reel over said web path from a first predefined position to a second position which couples said leader block to said take-up reel for subsequent conjoint rotational movement with said take-up reel about the axis of rotation of said take-up reel during winding and unwinding of web material on and off said take-up reel, said apparatus comprising:

a device adapted to selectively couple said leader block to said device at said first predetermined position which permits rotation of said block relative to said device about a first axis parallel to the axis of said reels;

a mechanism for moving said device and said coupled leader block from said first predetermined position to said second position to dispose said first axis coaxially with the axis of said take-up reel and said web material in winding relationship to the hub of said take-up reel, and for guiding said coupling device during movement over a predetermined path which corresponds to said tape path; and

means for permanently attaching said coupling device to said mechanism.

4,334,657

DEVICE FOR FIN-STABILIZED SHELL OR THE LIKE

Kjell Mattson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Continuation of Ser. No. 876,090, Feb. 8, 1978, abandoned. This application Oct. 24, 1979, Ser. No. 87,835
Claims priority, application Sweden, Feb. 9, 1977, 7701406
Int. Cl.³ F42B *13/32*
U.S. Cl. 244—3.28 7 Claims

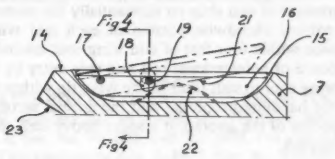
1. A fin-stabilized projectile assembly adaptable for delivering a charge along a predetermined trajectory, and comprising:

a projectile body having a nose section, a middle section and a tail section, with said middle section including a substantially cylindrically-shaped forward end portion engaging said nose section and further including a tapered rear end portion extending between said cylindrically-shaped forward end portion and said tail section;

with said forward end portion extending substantially 85%–95% of the full caliber of said projectile;

an outer surface of said tapered rear end portion of said middle section forming an acute angle α with an imaginary plane extending parallel to said cylindrically-shaped forward end portion;

said tail section including a substantially cone-shaped forward end portion forming a direct juncture with said tapered portion of said middle section, said cone-shaped forward end portion forming an acute angle β with a further imaginary plane extending parallel to said imaginary plane, wherein acute angle α is at least 15° and no larger than 20° and acute angle β is greater than acute



angle α to maintain a stable trajectory for said projectile; and

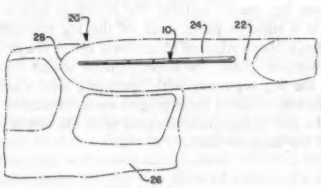
separate elongated fin means each extending outwardly from said tail section, said fin means circumferentially spaced from one another about the periphery of said tail section, each of said fin means including a forward end portion overlapping said cone-shaped portion of said tail section, with each fin means having a forward edge extending outwardly from a position adjacent the juncture formed by said tapered portion of said middle section and said cone-shaped portion of said tail section for smoothly sweeping air between said elongated fin means to stabilize the projectile in its trajectory even during supersonic flight.

4,334,658

STALLING AERODYNAMICS OF THE CESSNA MODELS 150 AND 152 SERIES AIRCRAFT

Sprague B. Mackenzie, 3847 Bassett Rd., Rootstown, Ohio 44272

Filed Apr. 6, 1979, Ser. No. 27,812
Int. Cl.³ B64C *3/58, 21/10*
U.S. Cl. 244—198 6 Claims



1. An improvement to the stalling aerodynamics and stall characteristics of Cessna 150/152 series aircraft having a fuselage and two wings having a span, leading edges, wing tips and wing roots, the leading edge of each wing having a centerline, wherein the improvement comprises:

the fixed securement of an immovable, non-pivoting, rigid strip, on substantially the centerline of the leading edge of each wing, on that portion of each said wing substantially adjacent to each wing root to passively trigger the separation of air flow against the wing at the wing root;

said strip of unchanging triangular shape having two termini defining a length thereinbetween, two substantially even

raised surfaces, a contour surface and a plurality of recesses having securement orifices;

said substantially even raised surfaces of said strip intersecting at a permanently determined raised surface junction, said raised surface junction having an angle substantially from about 80° to about 100°; and

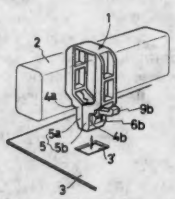
said contour surface intersecting both said raised surfaces of said strip at raised-contour surface junctions having an angle substantially from about 35° to about 55°, said contour surface and said raised-contour surface junctions fixedly secured to a small chordwise portion of said leading edge of said wing about said centerline, said strip immovably extending the leading edge of the wing into the airflow over a portion of the wing within four feet of the wing root, whereby said immovable, non-pivoting securement of said strip on substantially the centerline of the narrow chordwise portion of each said wing at a distance within four feet of said wing root minimizes the incidence of unintentional roll into spin entry by forcing the wing root to stall prior to the wing tip without affecting the handling properties and the normal aerodynamic properties of the aircraft at a speed above stall speed for the aircraft.

4,334,659

PLASTIC RETAINING-FASTENING DEVICE

Takuo Yuda, Yokohama, Japan, assignor to Nifco Inc., Tokyo, Japan

Filed Jul. 11, 1980, Ser. No. 168,955
Int. Cl.³ F16L *3/08*
U.S. Cl. 248—73 **6 Claims**



1. A plastic retaining-fastening device comprising a retaining piece adapted to be wrapped around an article subjected to fastening and a pair of leg segments projecting from the opposite ends of the retaining piece and adapted so that the leg segments, when juxtaposed to and pressed against each other, form one leg means suitable for insertion into a fitting hole bored in a support plate, each of the leg segments provided with check claws adapted to securely retain the device relative to the support plate, the improvement which comprises providing the leg segments with operating pieces adapted to release the check claws belonging to each respective leg segment from the fast engagement thereof with the edges of the fitting hole in the support plate.

4,334,660

COLLAPSIBLE BIN STRUCTURE

Theodore R. Zeigler, 205 S. Columbus St., Alexandria, Va. 22314

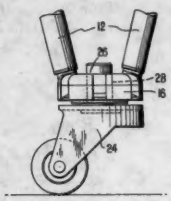
Filed Dec. 28, 1979, Ser. No. 108,013
Int. Cl.³ A63B *55/04*
U.S. Cl. 248—97 **7 Claims**

1. A collapsible, free standing bag holder for sustaining a bag in generally upright, open mouthed position comprising;

a surrounding frame of latticed rigid struts pivotally joined at each intersection and having a vertical central passage whereby said passage expands radially as said frame collapses vertically;

a bag positioned within said frame having its mouth generally aligned with the upper opening of said passage such that its body is distensible down into said passage;

means for attaching said bag to said frame at points about said upper opening to maintain the mouth of said bag open and prohibiting the radial expansion of said opening so as to maintain a vertical height of said frame that will substantially accommodate the distended body of the bag, said frame comprising a first set of rigid struts joined



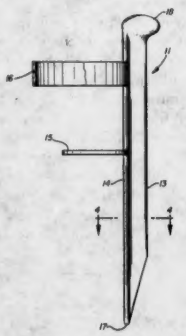
end-to-end by hubs to which each strut is independently pivotally attached to form a closed loop, a second set of an equal number of struts that are joined end-to-end in the same manner as the first set of struts and with each strut intersecting one strut of the first set where they are pivotally attached such that the adjacent hubs of the first and second sets are alternately disposed in two horizontally superposed circular patterns in parallel upper and lower horizontal planes.

4,334,661

DRINK CONTAINER MOUNTING GROUND STAKE

Samuel G. Pitt, Rte. 1, Box 136 A, Carlsbad, N. Mex. 88220

Filed Sep. 14, 1978, Ser. No. 942,466
Int. Cl.³ A47G *23/02*
U.S. Cl. 248—146 **3 Claims**



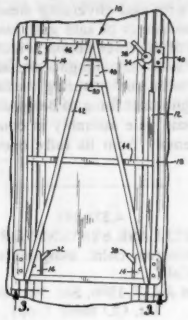
1. A holder for containers in the form of fluid drink containers with the holder in the form of a stake comprising: a stake body having a pointed lower end for being driven into the ground; a laterally extended foot for supporting containers; a ring, integrally a part of the stake, spaced above the foot for lateral support of a container the ring encircles and that is supported by the foot; and wherein said stake body, the laterally extended foot and the ring are a unitary structure of tough cast plastic; and wherein said stake body is formed with a blunted enlarged top in other than vertical alignment with said foot and said ring to facilitate driving of the stake into the ground and removal from the ground and non-interference with an article held by said foot and said ring.

4,334,662

LANYARD SUPPORT FOR METAL BUILDING ROOF

Thomas R. Davis, and Charles D. Bostian, both of Pettis County, Mo., assignors to Tempel-Callison Company, Sedalia, Mo.

Filed Sep. 5, 1980, Ser. No. 184,781
Int. Cl.[3] E04G *3/12*
U.S. Cl. 248—237 8 Claims



1. A device for supporting a load on a standing seam roof, said device comprising:

platform means for spanning the distance between two parallel roof seams;

camming means mounted on opposite sides of said platform means for engaging said parallel roof seams,

each of said camming means being coupled with said platform for movement toward and away from the respective seams;

backup means mounted on opposite sides of said platform means in alignment with said camming means and disposed for positioning against said roof seams on the opposite sides from said camming means to provide backup support for said camming means when the latter engages said roof seam; and

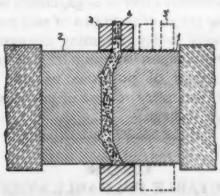
means for locking said camming means against said roof seams.

4,334,663

MOLDS FOR THE PRODUCTION OF DISHES AND THE LIKE FROM POWDERED CERAMIC MATERIALS

Franco Ponginibbio, Milan, Italy, assignor to Welko Industriale S.p.A., Milan, Italy

Filed Nov. 21, 1980, Ser. No. 209,290
Claims priority, application Italy, Dec. 7, 1979, 27939 A/79
Int. Cl.[3] B29C *1/00, 5/00;* B29F *1/022*
U.S. Cl. 249—105 4 Claims



1. A mold for pressing ceramic dishes and the like from powder ceramic material, comprising two cylindrical dies of substantially identical diameters, each having a longitudinal axis and being coaxially positioned with each other, at least one of said dies being displaceable with respect to the other between an open and closed positions, said dies having end walls being shaped as to reproduce, in negative, respectively the front and the rear walls of the dish to be produced and to define a cavity between said walls when said dies are in said closed position; a main die-box encircling said cylindrical dies and adapted to slide along said longitudinal axes for peripherally closing said cavity, said main die-box including a conduit for feeding the powdered ceramic material into said first cavity; and an auxiliary die-box encircling at least one of said dies and adapted to be displaced along said longitudinal axes towards and from of said main die-box, said main die-box and said auxiliary die-box formed with annular grooves facing towards each other and open towards said dies, said grooves being conformed with each other, so that in said closed position they form an annular cavity being in registry with said cavity and radially extending therefrom whereby said annular cavity forms the peripheral border of the dish to be produced.

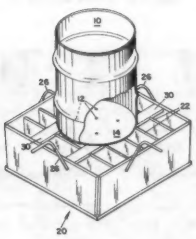
4. The mold of claim 1, wherein said conduit is formed by a channel extending normal to said longitudinal axis.

4,334,664

APPARATUS FOR RECOVERING TIN FROM TIN DROSS

Robert M. Gancarz, Sr., 98 Szetela Dr., Chicopee, Mass. 01013

Division of Ser. No. 844,809, Oct. 25, 1977, Pat. No. 4,119,136.
This application Jun. 8, 1978, Ser. No. 913,844
Int. Cl.[3] B22D *0/00*
U.S. Cl. 249—108 1 Claim



1. In tinning, apparatus for recovering tin from tin dross upon insertion into an annealing furnace under prescribed conditions of duration and operating temperature preliminary to removal therefrom and cooling thereof comprising in combination:

a tin dross charging barrel having apertures through its bottom for the flow of molten free tin therethrough,

a collecting tin mold having opposite side and end walls secured to a horizontally disposed base,

the side and end walls of the mold being disposed at a slight angle from perpendicularity relative to the base,

a plurality of vertically-extending partitions extending from side wall to side wall of the mold,

means for positioning the partitions in spaced relation as to each other and as to the end walls of the mold,

the partitions having a slight bevel at their opposite edges,

the partitions and side walls of the mold defining less than liquid-tight joints for the free flow of molten tin around the partitions in operational use.

4,334,665

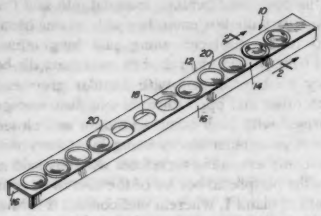
REPLACEABLE CUP FOR ENGLISH MUFFIN PROOFING TRAYS

Eugene M. Noel, 1215 S. Portofino Dr., #106, Siesta Key, Sarasota, Fla. 33581

Filed Apr. 16, 1980, Ser. No. 140,824
Int. Cl.[3] B29C *1/00;* F26B *25/18*
U.S. Cl. 249—134 3 Claims

1. A proofing cup formed of felt sheeting approximately

1/16 inch thick having a minimum of 95% wool, a maximum of 2½% trichloroethane extractable materials, and a tensile



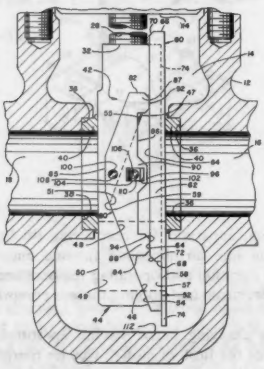
strength of at least 500 psi, said cup having a substantially flat bottom and sidewalls tapering inwardly with a minimum draft.

4,334,666

EXPANDING GATE VALVE WITH POSITION RESPONSIVE INTERLOCK

Patricio D. Alvarez, Rosenberg, and Robert J. Trevino, Houston, both of Tex., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed May 2, 1980, Ser. No. 145,903
Int. Cl.³ F16K *25/00*
U.S. Cl. 251—167 **4 Claims**



1. In a gate valve structure of the expanding type having a valve chamber and an expanding gate assembly mounted in the valve chamber for movement between open and closed positions, the gate assembly including a gate member connected to a valve stem and a segment member carried by the gate member with wedging surfaces between the members permitting a wedging action to provide lateral expansion therebetween at fully open and closed positions, where the improvement comprises:

an elongate member pivotally mounted to a side of one of said gate and segment members and having opposite ends, said elongate member having a slot and an aperture, a bearing member slidably received in said slot, and a bearing pin extending from a side of said other of said gate and segment members and journaled within said bearing member;

means, contained within said valve chamber and engaging said elongate member, for governing the ability of said elongate member to pivot thereby allowing said gate and segment members to expand from each other only at a preselected position in the travel of the gate assembly;

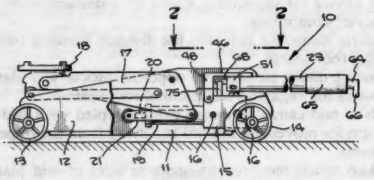
a pivot pin extending from said one of said gate and segment members and being journaled within said aperture when said gate assembly is in a fully collapsed position, said aperture and slot being aligned in a direction generally transverse of the direction of movement of the gate assembly with said slot being adjacent said governing means and said aperture being remote from said governing means such that the moment arm of the force couple which acts on said pivot pin and said elongate member at its point of engagement with said governing means for initiating the collapsing movement of said gate assembly exceeds the moment arm of the force couple which acts on said bearing member and said elongate member at its point of engagement with said govering means to thereby minimize the longitudinal force to be applied to said elongate member by said gate assembly in commencing travel of the gate assembly from its fully open and fully closed positions.

4,334,667

HYDRAULIC RELEASE SYSTEM FOR LIFTING JACK

Robert Fox, Wilmington, Calif., assignor to Norco Industries, Inc., Gardena, Calif.

Filed Jul. 7, 1980, Ser. No. 166,238
Int. Cl.³ B66F *3/00*
U.S. Cl. 254—8 B **6 Claims**



1. A hydraulic actuator system for a lifting jack wherein the lifting jack has a carriage including a block, a hydraulic reservoir supported by said block, a power ram in operating engagement with a lifting linkage and a pump between the reservoir and the ram having a reciprocating pump handle with a horizontal pivot axis tiltably mounting the pump handle on said carriage for operation throughout a range of positions in a vertical plane to activate the pump, said system comprising a hydraulic fluid return line from the ram to the reservoir, a valve seat in said return line acting upstream relative to flow from the ram, a valve element adapted to engage said seat under pressure from said ram, a release pin reciprocatably mounted on said carriage and in operating engagement with said valve element, a manually actuated release member rotatably mounted on said pump handle, a cam element on said release member normally clear of engagement with said release pin throughout the range of positions of said pump handle and having progressively acting camming engagement positions with said release pin upon rotation of said release member throughout the range of positions of said pump handle whereby to effect controlled release of pressure in said ram to lower the elevating linkage.

4,334,668

PORTABLE FOLDABLE HOIST

Daniel D. Caris, 3540 Court St., Redding, Calif. 96003

Filed Feb. 17, 1980, Ser. No. 235,009
Int. Cl.³ B66F *5/02*
U.S. Cl. 254—8 B **4 Claims**

1. A foldable apparatus for lifting and moving heavy objects, comprising:

a base having a front end and a rear end;

a plurality of legs attached to and extending horizontally from said base;

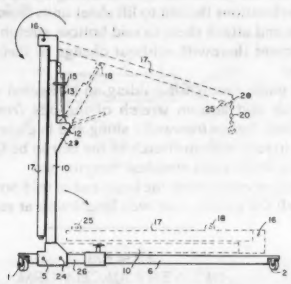
a vertical member pivotally connected at its lower end to

said base whereby it folds down against said base, and having:

a substantially horizontal extension rigidly attached to the upper end of said vertical member and extending substantially parallel to and in the direction of the rear end of said base; and

means for locking said vertical member with respect to said base;

a lifting beam pivotally connected at one end to said substantially horizontal extension such that the pivot point is offset from said vertical member toward the rear end of said base, while said lifting beam extends over the top of



said vertical member in the direction of the front end of said base, whereby the downward movement of said lifting beam is limited when it comes to rest on said vertical member, and whereby said lifting beam swings over the upper end of said vertical member and folds down against the side of said vertical member closest to the rear end of said base; and

a jack unit pivotally connected at one end to said vertical member and having quick disconnect means pivotally connecting the other end to said lifting beam, whereby said jack unit easily attaches to and disconnects from said lifting beam.

4,334,669

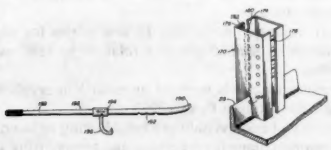
JACKING MECHANISM FOR A PORTABLE SAWMILL

Warren K. Ross, Main St., W. Hampstead, N.H. 03841

Division of Ser. No. 76,905, Sep. 16, 1979, Pat. No. 4,275,632. This application May 22, 1981, Ser. No. 266,185

Int. Cl.³ B66F *15/00*

U.S. Cl. 254—130 **6 Claims**



1. A jack for raising and lowering heavy objects, comprising

(a) a fulcrum, and,

(b) a lever,

(c) said fulcrum being formed with a pair of spaced apart parallel vertical walls, one wall having at least one fulcrum edge

(d) the other vertical wall spaced from said edge and defining a vertical slot opposite said edge and at least one recess in said wall along said slot,

(e) said lever including a sleeve movable lengthwise of said lever and adapted to engage said recess when said lever is against said edge and aligned with said recess whereby said lever may be locked in position against said fulcrum.

4,334,670

ANCHOR WINCH EQUIPMENT

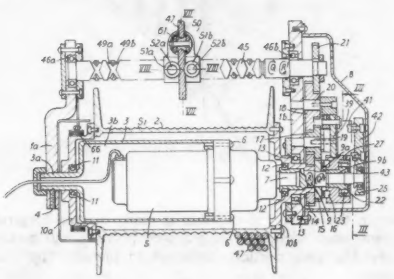
Motoyuki Kawabe, Onomichi, Japan, assignor to Taiyo Sengu Co., Ltd., Japan

Filed Jan. 16, 1980, Ser. No. 112,675

Claims priority, application Japan, Jan. 17, 1979, 54-4106

Int. Cl.³ B65D *1/14*

U.S. Cl. 254—346 **2 Claims**



1. An anchor winch comprising:

(i) a support structure

(ii) a winding drum journalled in said structure for rotation about an axis and having a coaxial drive pinion

(iii) a reversible motor carrier by said structure and having a drive shaft with a quick-thread thereon

(iv) a ratchet gear coaxial with said drive shaft and coupled to said drive pinion

(v) a change-over ratchet wheel mounted coaxially on the quick thread of the drive shaft, said wheel having means at one axial end to engage a stop carried by the support structure, said wheel having means at the other axial end to engage with said ratchet gear, whereby upon rotation of said drive shaft in one direction said changeover ratchet wheel is thrust by said quick-thread in one axial direction to engage said stop and disengage from said ratchet gear, and upon rotation of said drive shaft in the other direction said changeover ratchet wheel is thrust by said quick thread in the other axial direction to disengage from said stop and engage with said ratchet gear,

(vi) a feed cam shaft journalled in said support structure for rotation about an axis parallel to said axis of the drum,

(vii) a cam-follower rope guide engaged on said feed cam shaft for reciprocal axial traversing movement as said cam shaft is rotated, and

(viii) means rotationally coupling said feed cam shaft and winding drum drive pinion.

4,334,671

GUARD-RAILS ASSEMBLY

Yvon De Guise, 37 Fleury, Vimont, Laval, Quebec, Canada

Continuation-in-part of Ser. No. 962,553, Nov. 20, 1978, abandoned. This application Jul. 30, 1979, Ser. No. 61,862

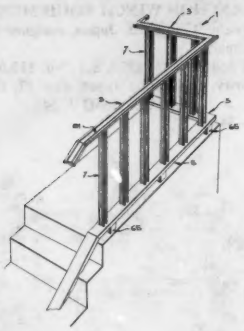
Claims priority, application Canada, Dec. 9, 1977, 292830

Int. Cl.³ B21F *27/00*

U.S. Cl. 256—65 **4 Claims**

1. An improved railing having at least a rail and a plurality of bars extending perpendicularly to the rail; the rail having an inner rail member and an outer rail member nested within the inner rail member; each inner and outer rail member being channel shaped with a web and flanges extending from the web; the web of the inner rail having spaced-apart openings through which the ends of the bars pass snugly; cooperating means on the ends of the bars and on the flanges of the outer

rail member for engaging slots near the ends of the bars and outer rail members together and cooperating means on the flanges of the inner rail members and on the outer rail members for connecting the rail members together in nesting relation,



wherein the outer rail member is made in two longitudinal sections, each section having a web portion, and means for joining the web portions together to provide the channel shape.

4,334,672

APPARATUS FOR AUTOMATICALLY APPLYING SHEET UNITS TO ENDLESS WEB

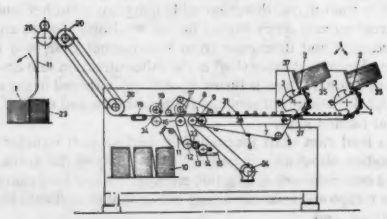
Willi Felix, Strengelbach, Switzerland, assignor to Jos. Hunkeler AG Fabrik fur graphischë Maschinen, Wikon, Switzerland

Continuation of Ser. No. 68,740, Aug. 22, 1979, abandoned. This application Apr. 8, 1981, Ser. No. 252,189

Claims priority, application Switzerland, Jun. 25, 1979, 5913/79

Int. Cl.³ B42B *2/00*

U.S. Cl. 270—53 **3 Claims**



1. Apparatus by which individual sheet units are brought into flatwise proximity to a substantially elongated web for adhesion to the web at locations along its length that are spaced apart by predetermined distances, said apparatus being characterized by:

A. transport means for supporting sheet units for edgewise motion in a forward horizontal direction, accelerating them to a predetermined velocity and establishing them in positions relative to one another that they are to have on a web, said transport means comprising

(1) endless carrier means having an upper stretch extending in said direction and driven for movement in said direction at said velocity,

(2) abutment means on said endless carrier means, operative in said upper stretch thereof to provide upwardly extending rearwardly facing surfaces against which front edge portions of sheet units on said transport means can be engaged, and

(3) acceleration means driven for movement in said direction at a speed faster than said velocity and arranged to frictionally engage sheet units on said transport means to urge them towards engagement on their front edge portions against said surfaces;

B. an endless belt having perforations therethrough that open to inner and outer faces thereof and having a horizontal bottom stretch extending in said direction, said belt

(1) being driven for movement of its bottom stretch in said direction at said velocity and

(2) having a rear portion of its bottom stretch upwardly adjacent to a front portion of said upper stretch of the endless carrier means;

C. suction means at said bottom stretch of the belt, adjacent to the inner surface thereof, for drawing air upwardly through the perforations therein to lift sheet units from said transport means and attach them to said bottom stretch by suction for movement therewith without change in their edgewise velocity;

D. web guide means for guiding an elongated web upwardly towards said bottom stretch of the belt from beneath the same and thence forwardly along and in close flatwise proximity to said bottom stretch of the belt to be flatwise contiguous to sheet units attached thereto; and

E. web drive means near the front end of said bottom stretch of the belt for pulling said web lengthwise at said velocity.

4,334,673

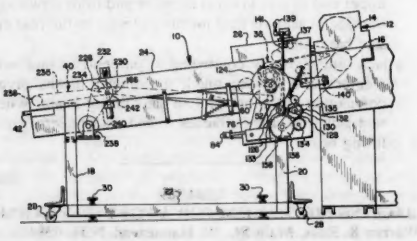
DELIVERY MECHANISM

Kenneth C. Clifton, Pittsburgh, Pa., assignor to Harris Corporation, Dayton, Ohio

Filed Aug. 1, 1980, Ser. No. 174,461

Int. Cl.³ B65H *29/66*

U.S. Cl. 271—65 **7 Claims**



1. Apparatus for delivering business forms selectably in a face up or face down position, comprising:

a stationary frame;

a pair of horizontally spaced vertically extending parallel plates mounted to said frame for rotation about a fixed horizontal axis;

a shaft mounted at its ends to said plates for independent rotation in spaced parallel relation to said axis of said plates;

a plurality of creels secured at spaced intervals along said shaft for rotation therewith;

a plurality of endless delivery belts having adjacent flights in a common plane for receiving and transporting said forms;

a plurality of pulleys supporting said belts for rotation;

a first set of said pulleys being mounted to said plates for rotation along a common axis in spaced parallel relation to said fixed horizontal axis of said plates and remote from said shaft;

a second set of said pulleys being mounted for rotation to said frame; and

means for rotating said plates about said fixed horizontal axis of said plates between a position in which said creels are disposed for receiving forms, inverting them and depositing them on said delivery belts, and a position in which said creels are in an inoperative position and said delivery

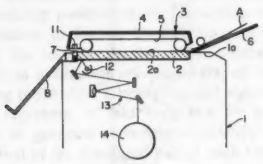
belts are disposed for receiving and transporting forms in their original face up or face down position.

4,334,674

AUTOMATIC FEEDING DEVICE FOR COPYING MACHINES

Shoichi Ishii, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Aug. 27, 1980, Ser. No. 181,557
Claims priority, application Japan, Sep. 11, 1979, 54-115721
Int. Cl.³ B65H *9/04*
U.S. Cl. 271—245 **4 Claims**



1. A registration device for an automatic feeding device for original documents comprising: an elongated registration member disposed adjacent one edge of a platen member for supporting an original document in a copying position, a leading edge of said original document abutting an upper portion of said registration member in said copying position, said registration member comprising a permanent magnet extending substantially the length thereof; guide means disposed along at least one edge of said registration member wherein said registration member is movable between an upper position with said upper portion extending above the upper edge of said platen and a lower position below said upper surface of said platen; spring means for biasing said registration member toward said upper position; cover means disposed above said platen and registration member; and electromagnet means, said electromagnet means extending substantially the length of said registration member, said electromagnet means producing a magnetic field in response to an exciting signal applied thereto for urging said registration member to move to a position below said upper surface of said platen.

4,334,675

GYMNASIUM APPARATUS

Charles G. Parry, 208 Greenbriar Rd., North Syracuse, N.Y. 13212, and David L. Sherwood, 3630 S. Maplewood Dr., Apt. B, Tulsa, Okla. 74135

Filed Oct. 22, 1979, Ser. No. 86,650
Int. Cl.³ A63B *3/00*
U.S. Cl. 272—63 **11 Claims**

10. A gymnastic device that includes

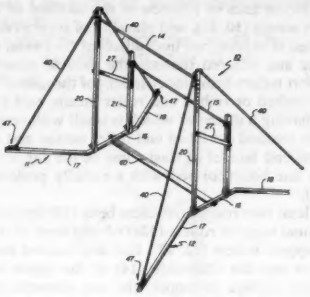
a base that is capable of resting upon a horizontal support surface,

a pair of parallel posts secured in the base and rising upwardly therefrom in a vertical direction,

an exercise bar supported between the post,

a pair of opposed rods secured to the upper part of each post above the exercise bar and extending obliquely to the base, and

means for locking each of the rods in compression against the base with sufficient force to establish a closed system in which the compression rods are prestressed in assembly so as to continually deliver a holding force to the base to



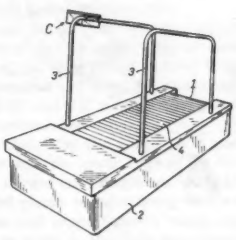
hold the latter against the support surface when a gymnast is exercising on the bar.

4,334,676

MOVABLE SURFACE APPARATUS, PARTICULARLY FOR PHYSICAL EXERCISE AND TRAINING

Rolf Schönenberger, Zurich, Switzerland, assignor to Wilhelm Schonenberger, Pratteln, Switzerland

Continuation-in-part of Ser. No. 616,951, Sep. 26, 1975, abandoned. This application Jul. 19, 1978, Ser. No. 926,149
Claims priority, application Switzerland, Oct. 11, 1974, 13691/74; Oct. 23, 1974, 14169/74; Sep. 23, 1977, 11880/77
Int. Cl.³ A63B *23/06*
U.S. Cl. 272—69 **22 Claims**



1. Movable surface apparatus for physical exercise and training comprising:

an essentially rectangular support frame (**2**);

two rotatable end roller means (**10**; **25**) having parallel axes of rotation supported on said frame (**2**), located adjacent the narrow sides of the frame, at least one of the end roller means having a toothed or ribbed circumference;

two endless toothed or ribbed connecting belt means (**5**, **5'**) looped about said toothed or ribbed end roller means (**10**, **25**) and located laterally spaced adjacent the lateral sides, and in alignment with said rollers;

the end roller means having a diameter large with respect to the thickness of the toothed or ribbed connecting belt means,

the ribs on the connecting belt means being in engagement with the gaps between the ribs or teeth on the surfaces of the end roller means and, in the course of travel about the end roller means, being aligned and oriented perpendicularly to the axes of rotation of said end roller means;

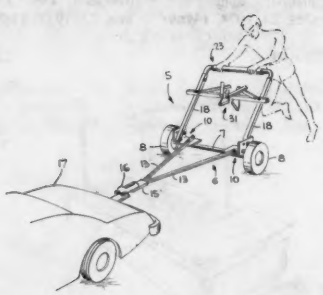
a plurality of closely adjacent transversely positioned step elements (**4**, **4'**, **114**) secured to the toothed or ribbed connecting belt means, and forming with said connecting belt means an endless continuous movable, essentially

even surface assembly looped about said rotatable end roller means to form an upper run and a lower run;

a plurality of support rollers (**12**, **12'**) located beneath the upper run with their axes of rotation parallel to each other and to the axes of rotation of the toothed or ribbed end roller means (**10**, **25**), said plurality of support rollers being located in at least two lines adjacent the lateral sides of the frame and secured thereto, the axes of rotation of said support rollers being independent of the axes of rotation of the toothed or ribbed end roller means, said support rollers having a diameter which is small with respect to that of the toothed or ribbed end roller means, and at least one lateral end face of at least some of the support rollers in each line being formed with a radially projecting flange (**112**);

and at least two resilient, endless belts (**13**) looped about the terminal support rollers (**12***a*) of said lines of the plurality of support rollers (**12**, **12'**, **12***a*) and located between said rollers and the underside (**14**) of the upper run of said support surface to support the step elements throughout their travel lengthwise of the frame, and hence of the apparatus, upon rotation of at least one of said end roller means and provide a yielding, resilient, independently movable cushion support between the step elements and the support rollers.

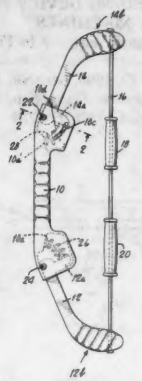
4,334,677
TRACK TRAINER
Robert Tata, 4536 Gleneagle Dr., Virginia Beach, Va. 23462
Filed Sep. 19, 1980, Ser. No. 188,729
Int. Cl.³ A63B *69/00*
U.S. Cl. 272—100 **12 Claims**



1. A track training device comprising a trailer unit including an axle, wheels, a frame having transversely remote mounting brackets and a tow hitch; and a support unit carried by said frame, said support unit including a pair of upwardly and rearwardly extending arms and including means for adjusting the length of said arms, a transverse bar carried by said arms, means for securing said arms to said mounting brackets in different upwardly sloping positions whereby the height of said bar may be selectively varied, and grip means on said bar, said transverse bar and grip means being sized and constructed to permit grasping by the hands of a human being positioned behind said trailer unit.

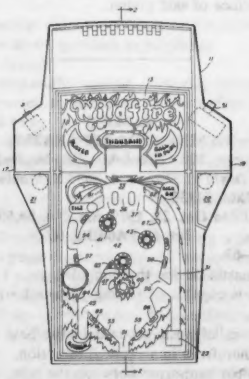
4,334,678
EXERCISER
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011
Continuation-in-part of Ser. No. 901,183, Apr. 28, 1978, abandoned. This application Mar. 12, 1979, Ser. No. 19,916
Int. Cl.³ A63B *21/00*
U.S. Cl. 272—141 **1 Claim**

1. An exerciser comprising a bow-like structure including a central bar having a left and a right end, a left arm having a free end and an end connected pivotally to the left end of the central bar, a right arm having a free end and an end connected pivotally to the right end of the central bar, a cord connecting the free ends of the arms to each other and resilient means connected to the arms to resist pivoting of the arms toward each other, the free ends of the arms being formed into hand-grasp means particularly adapted to be hand-grasped by a user, whereby in use of the exerciser the free ends of the arms may be moved toward each other against the force of the resilient



means by exerting force directly on the arms to move them toward each other and/or by exerting force directly on the cord and/or the central bar so as to similarly move the arms toward each other, in which the gauge comprises a cutout in one end of the central bar and one of the arms and a tab mounted on the other end of said central bar and one of the arms and extending through said cutout to move relative thereto upon pivoting of the last recited central bar and arm.

4,334,679
HAND-HELD PINBALL GAME
Holly T. Doyle; Robert O. Doyle, both of 77 Huron Ave., Cambridge, Mass. 02138, and Wendl Thomis, 383 Old Beaver Brook Rd., Acton, Mass. 01718
Filed Jan. 24, 1980, Ser. No. 114,882
Int. Cl.³ A63F *9/00*
U.S. Cl. 273—1 E **5 Claims**



1. A handheld pinball simulation game comprising:

a faceplate carrying indicia corresponding to a pinball machine and having a plurality of discrete features;

behind said faceplate an array of discrete light sources dis-

posed along and at intersections of predetermined ball paths connecting said features;

on each side of said faceplate, manually operable control pushbuttons, said indicia including at least a pair of flipper features which associate respectively with said pushbuttons, said array including light sources at each of said flipper locations;

a play-initiating pushbutton;

a loudspeaker;

electronic digital circuit means interconnecting said pushbuttons, said light sources and said loudspeaker, said electronic digital circuit means including a processor, writable memory, and read only memory;

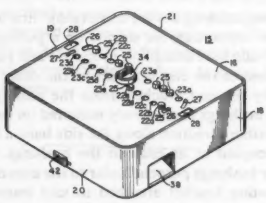
wherein said read only memory contains fixed data representing the relative locations of the elements of said array and an algorithm which is started by operation of said play-initiating pushbutton for simulating ball movement from feature to feature by lighting said sources in sequence, the initial velocity of the simulated ball being variable as a function of the length of time said play-initiating pushbutton is operated, said algorithm including also a repertory of said programs for energizing said speaker to generate sounds appropriately characterizing the arrival of the simulated ball at each feature.

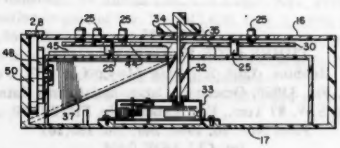
4,334,680

GAME APPARATUS

Thomas K. Liversidge, Crescent Surf, Kennebunk, Me. 04043

Filed Sep. 2, 1980, Ser. No. 182,998
Int. Cl.³ A63F *3/00, 9/00*
U.S. Cl. 273—1 GE **7 Claims**





1. Game apparatus comprising

a housing having a top wall provided with openings for insertion of game pieces,

said game pieces comprising pins of predetermined length,

a rotatable disc below said top wall having indicia for indicating the insertion of pins in said openings and normally providing a support for inserted pins,

means for continuously rotating said disc in a predetermined direction, and

a fixedly mounted supporting wall for said pins beneath said rotatable disc for movement of said pins therealong,

said disc having a plurality of openings for permitting downward movement of said pins for support by said supporting wall and movement therealong,

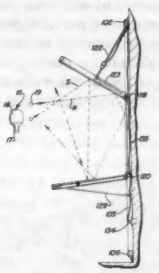
said game pieces being of a length when in engagement with said supporting wall being beneath said top wall for movement by said openings in said disc.

4,334,681

GAME APPARATUS FOR USE WITH A PADDLE AND A BALL

Carl E. Scheie, Libertyville, Ill., assignor to Brunswick Corporation, Skokie, Ill.

Filed Nov. 26, 1979, Ser. No. 97,736
Int. Cl.³ A63B *67/04, 71/04*
U.S. Cl. 273—30 **13 Claims**



1. A game apparatus for use with a paddle and a ball, comprising:

a first planar member having a generally vertical substantially flat playing surface lying substantially perpendicular to a floor upon which two players stand;

a second planar member having a playing surface intersecting along one edge with said first planar member, said playing surface of said second planar member being above said first planar member and being disposed at an angle within the range of 115° and 135° with the playing surface of said first planar member; and

a third planar member having a playing surface intersecting along one edge with said first planar member, said playing surface of said third planar member being below said first planar member and being disposed at an angle within the range of 95° and 105° with the playing surface of said first planar member; and

means for supporting said apparatus in spaced relation from the floor with the lower edge of the first planar member being at normal table height and with the forward edge of said third planar member being freely suspended above the floor; said support means being such as to allow the players to stand on the floor immediately in front of the forward edge of said third planar member;

said playing surfaces of said second and third planar members being of substantially the same vertical dimension and being wider than they are high; said three playing surfaces constituting the only playing surfaces of the apparatus; the angle between the playing surfaces of said second and first planar members being such as to rebound a ball served with a paddle into contact with said playing surface of said second planar member generally downward into contact with the playing surface of said third planar member; and said angle between the playing surfaces of the first and third planar members being such as to rebound said ball in the general direction of the two players.

4,334,682

SIMULATED BALL SPORT AMUSEMENT INSTRUMENT

Young S. Ham, Dong Il Apartment, Room No. 516, 234-84, Sung In 2-dong, Jongro-ku, Seoul, Rep. of Korea

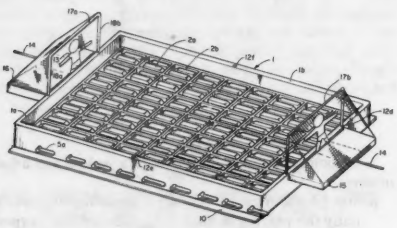
Filed Aug. 14, 1979, Ser. No. 66,311
Int. Cl.³ A63F *7/07, 7/20*
U.S. Cl. 273—85 E **6 Claims**

1. A ball sport amusement instrument for optionally playing one of several different games comprising:

a rectangular frame having vertical side walls interconnecting vertical end walls; each of said side walls having a longitudinally-extending series of openings formed therein, the openings in one of the series being in alignment with the openings in the other of the series to form pairs of aligned openings;

a plurality of hitting units, each unit having a hitting surface disposed in the interior of said frame and hinge bars formed at outer ends thereof extending through respective pairs of said openings;

handle levers connected to said outer ends of said hinge bars, the hitting surfaces being movable from rest positions into hitting positions by rotation of the handle levers, said hitting surfaces defining a playing surface extending between said side and said end walls such that a ball lying anywhere on the playing surface can be hit by at least one hitting surface;



means carried by said end walls for receiving poles of goal gates for football and basketball;

means carried by said side walls for receiving poles of a net for volleyball;

a grille disposed in the interior of said frame and having an upper horizontal surface substantially planer with the rest positions of the hitting surfaces, the grille defining a plurality of openings in which the hitting surfaces are positioned; and

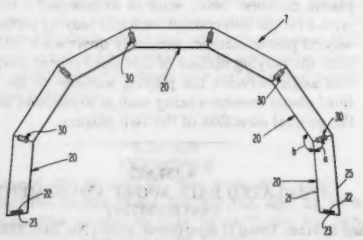
said hitting units having a plurality of separate hitting surfaces spaced from each other in the shape of teeth of a comb, the hitting surfaces of adjacent pairs of hitting units being interleaved with each other so that a ball can be simultaneously hit by a hitting surface of each of the adjacent pairs of hitting units.

4,334,683

DISC GAME APPARATUS

James B. Campbell, P.O. Box 6, Malvern, Pa. 19355

Filed Jul. 30, 1980, Ser. No. 173,480
Int. Cl.³ A63F *3/00*
U.S. Cl. 273—126 R **5 Claims**



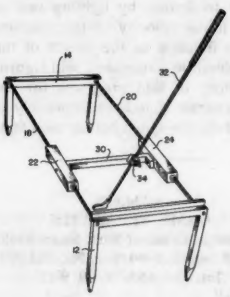
1. In game apparatus having an open-ended stadium structure generally semicircular in plan for mounting on a flat playing surface and a plurality of pucks for propelling along such a flat playing surface into the open end of the stadium structure, the improvement comprising a modular stadium structure assembled from a plurality of structural pieces disengageably secured end-to-end, each such structural piece having a generally vertical front face intersecting the flat playing surface and facing inward of the assembled stadium, the exterior angle so formed between adjacent front faces being less than a straight angle by less than thirty degrees but more than half that much, the assembled stadium structure circumscribing an arc less than a half circle by at most about twenty-five degrees.

4,334,684

GOLF PUTTING TRAINING DEVICE

Robert H. Sterling, 121 S. Bentley Ave., Los Angeles, Calif. 90049

Filed May 8, 1981, Ser. No. 262,025
Int. Cl.³ A63B *69/36*
U.S. Cl. 273—192 **4 Claims**



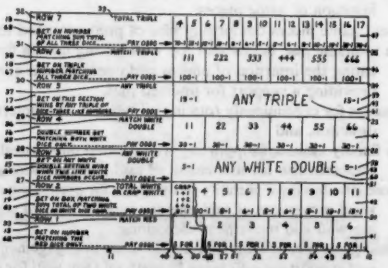
1. A putting training device comprising: first and second end brackets for supporting the device on a putting surface; first and second side bars extending in spaced and parallel relationship from one of the end brackets to the other and displaced upwardly by the end brackets from the putting surface; first and second bushings respectively mounted on the side bars and slidable in either direction along the side bars; a transverse arm pivotally coupled at its ends to the bushings and extending between the bushings perpendicular to the axes of the side bars; and a mounting bracket attached to said transverse arm for clamping the shaft of a putter to the transverse arm with the blade of the putter adjacent to the putting surface.

4,334,685

THREE DICE WAGERING GAME

Anthony Robbins, 1801 S. Dixie Hwy., Lot 207, Pompano Beach, Fla. 33060; Omero C. Catan, and Jeanne Catan, both of 1901 S.W. 87 Terr., Fort Lauderdale, Fla. 33324

Filed Nov. 20, 1980, Ser. No. 155,101
Int. Cl.³ A63F *9/04*
U.S. Cl. 273—274 **2 Claims**



1. In a new table game of chance device:

game having a table surface comprised of fourteen rectangular areas or spaces with said spaces being arrayed into two groups of seven spaces each with one of the two being adjacent to the other group directed from the top to the bottom of the playing surface and, further, a black line running in a vertical direction, directed from the top of the playing surface to te bottom thereof, demarcates the one group of spaces from the second group;

each space of the group of seven spaces on the left side is co-related to its counterpart space of the group of seven spaces at its right side, the area or space at the left having indicia thereon explanatory in nature as to the type of bet available or offered when a bet is placed on its counterpart space which is the actual betting area at its right, and

further, the spaces at the left having, among other things, indicia thereon specifically identifying and attaching itself as being indigenous to the space at the right by the title ROW, ergo, Rows **1** thru **7** are comprised of all of the fourteen areas of the playing surface, however, while the left areas of Rows **1** thru **7** are essentially identical in format the right side or betting areas of Rows **1** thru **7** are not all alike in format since Rows **1, 2, 4, 6** and **7** are comprised of a plurality of betting stalls divided into two components each, the upper component representing the 'number ' bet and the lower component stating the odds offered and the betting areas of Rows **3** and **5** respectively having the center spaces therein emblazoned with the type of bet and, at either side thereof, the odds offered, and

three dice, each of said dice having six surfaces with indicia thereon identifying the faces with a different one of the numbers one to six, two of said dice being white in color and the third dice being red in color, and in each game which consists only of one throw of all three dice simultaneously, the total of all three dice's numbers facing skywards is represented by Row **7**, and, further, if the numbers on the three dice are alike Row **5** and Row **6** are also represented, further, and still pertaining to the same throw and game, the two white dice are represented in tandem or collectively in Rows **2, 3,** and **4** respectively, still further, the red dice is represented in Row **1**, again, in the same throw and game.

4,334,686

APPARATUS FOR PLAYING A GAME OF CHANCE

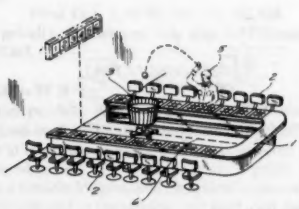
Attilo Pennachio, 14 Amber Cir., Las Vegas, Nev. 89106

Continuation-in-part of Ser. No. 947,630, Oct. 2, 1978, Pat. No. 4,232,866. This application Nov. 10, 1980, Ser. No. 205,097

The portion of the term of this patent subsequent to Nov. 11, 1997, has been disclaimed.

Int. Cl.[3] **A63B** *63/02;* **A63F** *5/02;* **F41J** *5/04*

U.S. Cl. 273—374 **10 Claims**



1. A gambling apparatus comprising a generally U-shaped table member having a pair of spaced apart substantially parallel table sections and a plurality of seats disposed along the outside portions of said sections for accommodating numerous participators; receptacle means disposed between said table sections, said receptacle means including a basket and a generally circular base member, said base member having formed therein seven or more equally spaced circular recesses, the centers of said recesses defining a circle concentric with the periphery of the base member, said base member further including a central closed mound encircled by said recesses, each of the recesses being associated with a number from **1** to a number corresponding to the total number of recesses, each of said numbers being indicated on the outside of the receptacle adjacent its associated recess, each of said numbers being further indicated on said mound portion adjacent its respective associated recess; a ball which may be directed by one of said participators to said receptacle for randomly falling into one of said recesses; means for leveling said base member to ensure the completely random entry of said ball into one of said recesses; visual display means for displaying each and all of said numbers corresponding to said recesses; electrical control means associated with each recess for communicating the presence of the ball in such recess to said display means for displaying the number corresponding to the respective ball containing recess; and a plurality of individual betting layouts disposed on said table sections, each of said layouts including a plurality of separate betting zones each of which denotes a manner of winning and the payoff for the respective manner of winning, said betting zones including zones for each number and various groups or combinations of numbers.

4,334,687

SHAFT SEAL WITH MULTI-SLITTED SLEEVE

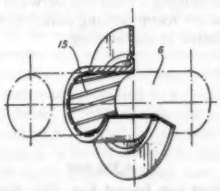
Helmut Hölzer, and Ernst M. von Arndt, both of Weinheim, Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim an der Bergstrasse, Fed. Rep. of Germany

Filed Nov. 20, 1980, Ser. No. 208,774

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 2949839

Int. Cl.[3] **F16J** *15/24, 15/32*

U.S. Cl. 277—151 **17 Claims**



1. A shaft seal for preventing leakage around a rotating shaft, which comprises:

a contact pressure ring of elastic material, and

a multi-slitted, thin sleeve of polytetrafluoroethylene permanently joined to the inner wall of the ring,

The slits forming an angle with the axis of shaft rotation of from about 5° to about 45° and extending radially through the complete sleeve and axially from one end of the sleeve to the other, and

the inside diameter of the sleeve being smaller than the diameter of the shaft so that when the seal is assembled onto the shaft, the slits open to form channels through

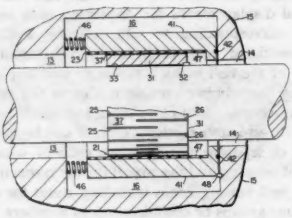
which the elastic material of the ring expands to contact the shaft.

4,334,688

FLUID LUBRICATED FLOATING BUSHING SEAL

John D. Spargo, and Kenneth R. Sasdelli, both of Annapolis, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 8, 1980, Ser. No. 147,795
Int. Cl.³ F16J *15/16*
U.S. Cl. 277—175 **16 Claims**



1. A shaft seal assembly positioned between a rotating shaft and a housing therefore comprising:

a cylindrical rotor portion affixed to a shaft having an axis of rotation;

a floating bushing element radially enclosing said rotor wherein adjacent bearing surfaces on said rotor and said bushing define a fluid lubricated interface therebetween, one of said bearing surfaces consists of a plurality of first and second grooves extending substantially parallel with said shaft axis and arranged in an axially overlapping and offset relationship with each other, wherein a first groove extends between two adjacent second grooves, and the other of said bearing surfaces being a compliant surface cooperating with said first and second grooves to promote flow of fluid from said first grooves to said second grooves; and

means for maintaining a fluid seal between said bushing and a housing while accomodating radial displacements of said bushing relative to the housing.

4,334,689

Patent Not Issued For This Number

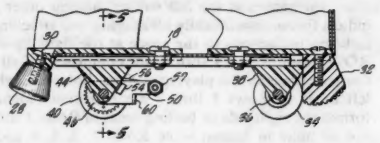
4,334,690

TRAINER/LEARNER SKATE

Reuben B. Klamer, Los Angeles, and Robert J. Mortonson, Seal Beach, both of Calif., assignors to Trend Products Group, Los Angeles, Calif.

Filed Nov. 5, 1979, Ser. No. 90,890
Int. Cl.³ A63C *17/14*
U.S. Cl. 280—11.21 **4 Claims**

1. A skate comprising in combination a base plate comprising a front plate and a rear plate attached to, and adjustable on, central rail means; a pair of wheels rotatably attached to said front plate and a second pair of wheels rotatably attached to said rear plate; a ratchet gear fixedly attached to the interior of at least one of said front wheels, said ratchet gear having a plurality of teeth, said front wheels being journaled to said front plate by means of a mounting pedestal which is attached to said front plate and depends downwardly therefrom, through which said front wheels are journaled; a pawl, for



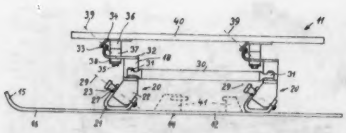
engaging said ratchet to prevent rotation of said front wheels in a rearward direction, attached to said mounting pedestal by means of an operation bracket which is securely fastened to said mounting pedestal by nut and bolt means; said pawl having a plurality of teeth; said operation bracket having a stop tab extending therefrom to restrict the rotation of said pawl thereby restricting the rotation of said front wheels; and means for quickly attaching the shoe or bare foot of a skater to said base plate.

4,334,691

SLEDGE WITH TILTABLE RUNNERS

Rudi Scheib, Panoramastrasse 13, D-7900 Ulm, Donau, Fed. Rep. of Germany

Filed May 9, 1979, Ser. No. 37,252
Claims priority, application Fed. Rep. of Germany, May 12, 1978, 2820803; Nov. 11, 1978, 2848959; Feb. 21, 1979, 2906628
Int. Cl.³ B62B *13/12*
U.S. Cl. 280—21 A **30 Claims**



1. A sledge, comprising:

at least two runners defining a longitudinal axis of the sledge;

at least two connecting members having joints at each end for interconnecting the runners; and,

at least one of the joints on each runner having means defining a tilt axis inclined in a generally vertical plane, each tilt

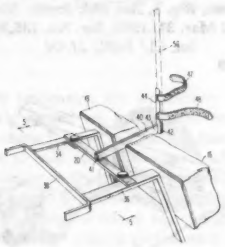
axis providing compound rotational components, whereby upon relative rotational movement of the runners and at least one of the connecting members about effective vertical axes, during which the tilt axis means of the respective runners necessarily move in opposite longitudinal directions together with the runners relative to one another, the runners simultaneously tilt about effective horizontal axes.

4,334,692

DETACHABLE UMBRELLA SUPPORT ASSEMBLY FOR A GOLF CART

Marvin P. Lynch, 11 Brice Rd., Pendennis Mount, Annapolis, Md. 21401

Filed Oct. 18, 1979, Ser. No. 86,101
Int. Cl.³ B60R *11/00*
U.S. Cl. 280—79.1 A **7 Claims**



1. An umbrella support assembly for attachment to a golf cart of the type having side-by-side seats and respective seat back support members, said assembly comprising:

first elongated horizontal support means adapted to be attached at opposite ends thereof to the seat back support members;

second elongated horizontal support means secured at one end thereof substantially perpendicularly to said first support means at a point intermediate said opposite ends thereof, and having a free end for projecting forwardly between the seats of the golf cart; and

bracket means secured to said free end of said second support means for detachably mounting an umbrella in a substantially vertical position such that the umbrella's canopy will cover the heads of occupants of the golf cart seats.

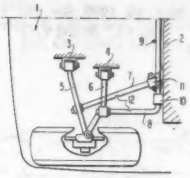
4,334,693

INDEPENDENT FRONT WHEEL SUSPENSION FOR MOTOR VEHICLES

Guntram Huber, Aidlingen, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 82,936
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1978, 2845345
Int. Cl.³ B60G *3/00*
U.S. Cl. 280—95 R **6 Claims**

1. An independent wheel suspension for a motor vehicle, characterized in that the independent front wheel suspension comprises at least two cross guide arms connected to a vehicle support member and to a wheel carrier, a guide element extending in a vehicle longitudinal direction is connected to each cross guide arm and at the vehicle end wall, one end of each of the guide elements is respectively connected to the cross guide arm at a position intermediate the vehicle support member and the wheel carrier, the second end of each of the guide elements is pivotally connected within an area of the vehicle end wall, each of the longitudinal guide elements includes means for enabling the guide element to deform under compression with a predetermined deformation characteristic, and in that one of



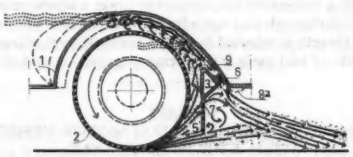
the guide elements is an arm of a U-shaped stabilizer pivotally connected to the vehicle end wall.

4,334,694

SPLASH PROTECTION ASSEMBLY FOR VEHICLES EQUIPPED WITH MUDGUARDS

Andrzej T. Iwanicki, Östrandsvägen 72, S-122 43 Enskede, Sweden

PCT No. PCT/SE78/00016, § 371 Date Mar. 12, 1979, § 102(e) Date Mar. 12, 1979, PCT Pub. No. WO79/00039, PCT Pub. Date Feb. 8, 1979
PCT Filed Jul. 11, 1978, Ser. No. 23,192
Claims priority, application Sweden, Jul. 11, 1977, 7778063
Int. Cl.³ B62D *25/18*
U.S. Cl. 280—154.5 R **15 Claims**

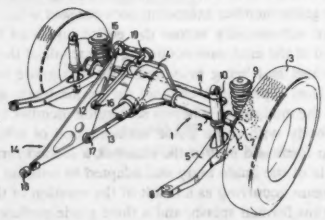


1. A splash protection assembly for vehicles with mudguards, comprising means arranged between the wheel of the vehicle and the mudguard for lessening the spread of dust and splash as a result of the vehicle travel, said means including at least one guide member extending between said wheel and said mudguard substantially across the entire width of the mudguard and in the airstream occurring as a result of the rotation of the wheel and being provided with one guide surface to form at least a part of a channel for an airstream along the inside of the mudguard, wherein said guide member comprises a guide body with three guide surfaces, one of which is arranged to form said part of the channel, a second forming the lower side of the guide body and adapted to redirect a part of the airstream occurring as a result of the rotation of the wheel and the thus formed splash, and a third guide surface forming an edge of incidence together with the second guide surface, said edge of incidence being directed towards the airstream occurring as a result of the rotation of the wheel and the thus formed splash and splitting this airstream into two partial airstreams, one of which is guided by the second guide surface, and wherein the third guide surface together with the first guide surface form the upper side of the guide body and are adapted to redirect the second partial airstream so that the two partial airstreams enter the channel with directions which are substantially in parallel with one another and with the airstream in the channel.

4,334,695
WALKING BUGGY
Walter Ashby, 1049 Whitehurst Landing Rd., Virginia Beach, Va. 23462
Filed Mar. 10, 1980, Ser. No. 129,093
Int. Cl.³ B62M *1/00*
U.S. Cl. 280—228 **1 Claim**

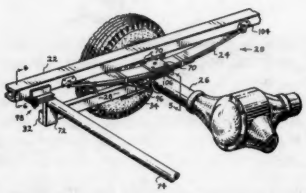
1. A walking buggy vehicle, comprising, in combination, a main frame, supported at its rear upon a pair of rear wheels, and supported, at its front, on a steering post of a front wheel, a treadmill upon said main frame including an endless belt, for a rider to walk thereupon, and a transmission, between said treadmill and an axle on which said rear wheels are affixed; said treadmill being upwardly inclined in a forwardly direction; and means to adjust said upwardly incline, said treadmill additionally including a pair of side rails, between which a plurality of rollers are supported rotatably free, said endless belt extending around all said rollers, and said adjustment means comprises the rear ends of said side rails being pivoted on a transverse pin, supported in brackets mounted on said main frame, while the forward ends of said side rails are integral with a transverse bar supported upon a screw extending downward through said main frame, and vertically adjustably secured thereto at selected height by nuts adjacent a lower and upper side of said main frame being engaged on said screw.

4,334,696
REAR WHEEL MOUNTING FOR MOTOR VEHICLES WITH A RIGID REAR AXLE
Carl-Ingvar A. Bergström, Västra Frölunda, Sweden, assignor to AB Volvo, Gothenburg, Sweden
Filed Jun. 4, 1980, Ser. No. 156,391
Int. Cl.³ B60G *11/14*
U.S. Cl. 280—725 **9 Claims**



1. In a rear wheel mounting for motor vehicles with a rigid rear axle, comprising a pair of longitudinal, spaced support arms which are joined to the axle and are journalled for pivoting relative to the vehicle body, spring and shock absorbing means acting between the respective support arms and the body, and a pair of torque stays acting between the axle and the body and which are arranged to contribute to the transmission of driving and braking torque to the body; the improvement in which the torque stays form a cooperating pair and are articulated to frame means flexibly joined to the body, the frame means having a forward point of attachment to the body, said point being situated in front of the articulation of the support arms in the body, and a rear point of attachment to the body, said point lying approximately above the rear axle.

4,334,697
TORSION BAR SUSPENSION ASSEMBLY
Vernon D. Deweese, Rte. 8, Box 664, Joplin, Mo. 64801
Filed Mar. 31, 1980, Ser. No. 135,365
Int. Cl.³ B60G *21/04*
U.S. Cl. 280—689 **8 Claims**



1. In a vehicle having a pair of laterally spaced-apart wheels, an axle housing interconnecting said wheels, a vehicle frame, a pair of spring means connected to said frame and contiguous to said axle housing at the lateral ends thereof, a vehicle suspension assembly comprising:

first and second laterally spaced-apart arms with each arm having front and rear ends, said arms being vertically disposed below said frame;

a torsion bar transversely extending between said arms and joined thereto at said rear ends thereof;

means for linking said rear end of each arm to said vehicle frame to provide a transverse extension of said joined torsion bar below said vehicle frame;

a bracket responsive to movement of said associated spring means and axle housing for connecting said front end of each arm to the corresponding juncture presented by said connection of said spring means and said axle housing;

means in each bracket for sandwiching a portion thereof between said contiguous axle housing and said spring means and including:

a generally horizontal plate interposed between said adjacent spring means and said axle housing, said interposed plate member being configured to minimize the vertical displacement of said initially contiguous spring means and axle housing;

a generally vertical bolt passing through each of said spring means near the longitudinal center thereof;

a recess in said plate for receiving an end of said bolt, said recess being configured to receive a bolt end in a swivel type registration about its longitudinal axis in response to lateral forces acting on said associated spring means,

said interposed horizontal plate responsive to vertical displacement of said juncture of said adjacent spring means and said axle housing and cooperating with said associated swivel bolt whereby to transfer a vertical displacement of said juncture to said arms while inhibiting transference of lateral displacement of said spring means to the same.

4,334,698

REAR AXLE SUSPENSION FOR AUTOMOTIVE VEHICLES

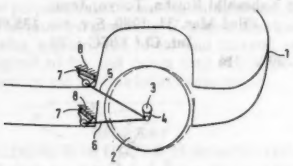
Gebhard Ruf, Weissach, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Apr. 7, 1980, Ser. No. 138,093

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1979, 2913651

Int. Cl.³ B60G 3/00

U.S. Cl. 280—690 16 Claims



1. Rear axle suspension for automotive vehicles with a driven rear axle guided on longitudinal control arms with elastic joints, characterized in that the elastic joints are arranged relative to said axles and control arms and are constructed in a manner creating a means for causing said suspension to be less resilient in a vehicle longitudinal direction when a vehicle body portion to which said joints are mounted is deflected downwardly relative to a neutral position and for causing said suspension to be more resilient in said vehicle longitudinal direction when the body portion is in an upwardly deflected position relative to said neutral position.

4,334,699

CAP-LIKE COVER FOR AN AIR BAG INSTALLATION

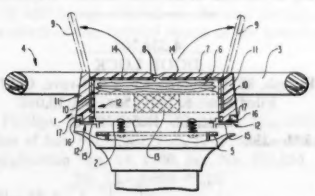
Helmut Patzelt, Fellbach; Albert Seybold, Wendlingen, and Volker Budde, Grosskarlbach, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Feb. 14, 1980, Ser. No. 121,457

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905618

Int. Cl.³ B60R 21/08

U.S. Cl. 280—731 7 Claims



1. A cap-like cover member for covering an air bag installation disposed inside a steering wheel of a motor vehicle, the cover member being made of an elastic material and being adapted to rip open along predetermined tearing lines so as to open along hinges when an air bag of the air bag installation is deployed, characterized in that the cover member includes downwardly bent edges adapted to be clipped on a baseplate mounted at the steering wheel, and in that retainer means are provided on the cover member for preventing the cover member from being subjected to deformation phenomena when the air bag is deployed, the retainer means includes a continuous band of highly tear-resistant material embedded in the elastic material of the cover member in a vicinity of the bent edge of the cover member.

4,334,700

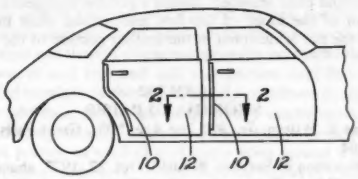
DOOR EDGE GUARD

Robert Adell, Novi, Mich., assignor to U.S. Product Development Co., Novi, Mich.

Filed Feb. 4, 1980, Ser. No. 118,475

Int. Cl.³ B60J 5/00

U.S. Cl. 280—770 2 Claims



1. For installation of the marginal edge of a sheet metal closure of a vehicle body, such as a door, a self-retaining ornamental and protective edge guard comprising a metallic strip of generally U-shaped cross section having inner and outer legs which are adapted to be disposed on opposite sides of and exert a retention force on said marginal edge and including the improvement which comprises a strip of non-metallic insulating material and of generally U-shaped cross section disposed on the free edge of one of said legs of said metallic edge guard strip along at least a portion of the length thereof and providing an insulating layer separating said portion from contact with said closure when said metallic edge guard strip is applied to said closure wherein said free edge of said one leg includes an integral turned bead adapted to bear against the corresponding side of said marginal edge when said metallic edge guard strip is applied to said closure, said non-metallic strip is disposed over said bead and includes an integral interlocking portion which interlocks behind the far end edge of the bead to secure the non-metallic strip to said one leg.

4,334,701

COUPLING FOR A VEHICLE SEAT BELT

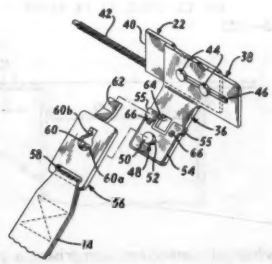
Juichiro Takada, 3-12-1, Shinmachi Setagayaku, Tokyo, Japan (105)

Filed Apr. 7, 1980, Ser. No. 137,735

Claims priority, application Japan, Apr. 11, 1979, 54-046846[U]; Aug. 27, 1979, 54-116788[U]

Int. Cl.³ A62B 35/02

U.S. Cl. 280—804 7 Claims



1. In a passive vehicle occupant restraint belt system which includes a belt leading from a retractor located inboard of the seat to an anchor outboard of the seat, a coupling arrangement for connecting the belt to the anchor comprising a first plate member connected to the anchor, a second plate member connected to the belt, releasable coupling means for coupling the first and second plates and including a pin projecting from

one of the plates and having a head portion and a shank portion that is smaller in at least one dimension than the head portion and a key-type hole in the other plate that includes a larger portion through which the head portion can pass and a smaller portion which accepts the shank portion but through which the head portion cannot pass, and retainer means for blocking the pin in the smaller portion of the hole and preventing manual release of the coupling means including a substantially flat spring member affixed substantially flatwise to one of the first and second plate members having a portion engageable with a portion of the other of the first and second plate members when the pin is accepted in the smaller portion of the hole.

4,334,702

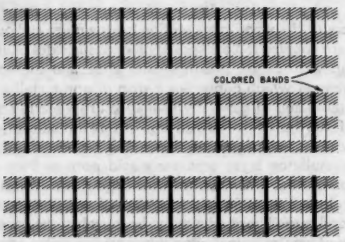
SHORTHAND PAPER

Thomas E. Wilson, Jr., 927 2nd Ave. NW., Great Falls, Mont. 59404

Continuation of Ser. No. 843,040, Oct. 17, 1977, abandoned. This application Apr. 17, 1979, Ser. No. 34,013

Int. Cl.³ G09B *11/04*

U.S. Cl. 283—45 **1 Claim**



1. A writing page having a plurality of writing lines thereon, each line comprising a plurality of segments having a plurality of horizontal bands with a plurality of vertical lines superimposed thereon to form a plurality of wiring squares, the segments being separated from each other by vertical lines of different character than the vertical lines contained within each segment, each writing line being vertically spaced from an adjacent writing line by a non-printed portion.

4,334,703

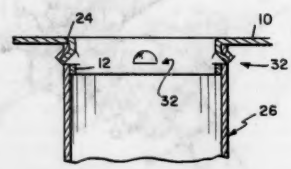
TUBE-TO-PLATE CONNECTION

James C. Arthur, and Graham F. Thieman, both of Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind.

Filed Aug. 9, 1979, Ser. No. 65,131

Int. Cl.³ F16L *13/14, 41/08*

U.S. Cl. 285—222 **15 Claims**



1. A mechanical connection, comprising a plate having a tubular flange extending therefrom, said flange having a radially inner surface and a radially outer surface, a tubular member extending alongside said flange, and means for mechanically joining said plate and said tubular member including at least two staked segments in generally the same plane about the axes of said tubular member and said flange, each staked segment comprising a circumferentially extending strip of the tubular member side wall and a registering strip of the flange wall, with at most one of the axially facing side edges of the strip of each of the tubular member wall and flange wall being sheared and the sheared axially facing side edge of one of the tubular member and flange walls protruding at least substantially to the region of the wall of the other of the tubular member and flange surrounding the strip, whereby rotational and longitudinal movement of the tubular member with respect to the flange is prevented.

4,334,704

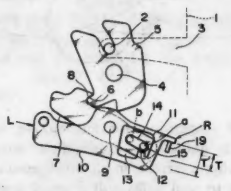
AUTOMOBILE DOOR LOCKING MECHANISM

Shinjiro Yamada, Tokyo, Japan, assignor to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 31, 1980, Ser. No. 135,902

Int. Cl.³ E05C *3/26*

U.S. Cl. 292—216 **5 Claims**



1. An automobile door locking mechanism comprising a latch rotatable with the engagement with a striker, a ratchet for preventing the rotation of the latch in the direction for releasing its engagement with the striker, an actuator plate for releasing the engagement of rachet with latch, connecting means for effecting and releasing the engagement of the actuator plate with the rachet, and a rotary lever operable to actuate the actuator plate with the operation of an interior door handle, in which to a shaft which pivotally fixes the rotary lever, another lever is pivotally fitted, either one of said levers being formed with a slot opening which extends radially to the shaft and the other being formed with a slot opening having an idle opening which extends about the shaft, and connector means having a part which passes through the slot openings at a right angle to the rotary plane of the levers, said connector means being connected to a child lock change lever so as to slidingly change its location within the slot openings and said another lever being connected to the interior door handle.

4,334,705

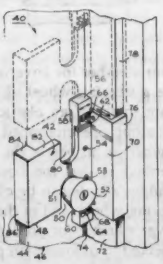
DOOR LOCK

Joel D. Rumph, 8875 Armaria Ct., Elk Grove, Calif. 95624

Filed Mar. 6, 1979, Ser. No. 18,064

Int. Cl.³ E05C *19/18*

U.S. Cl. 292—288 **7 Claims**



1. An improved door lock for outwardly opening doors, said lock comprising, in combination:

a. doorknob-engaging means adapted to releasably grip a doorknob; and,

b. retaining means secured to said doorknob-engaging means and adapted to releasably grip the edge of a doorframe adjacent a doorknob gripped by said doorknob-engaging means, so as to prevent a door to which said doorknob is secured from being outwardly opened, said retaining means comprising a plate having one side thereof adapted to overlie a doorjamb, said plate including a front lip adapted to overlie and grip the leading edge of a doorjamb, said doorknob-engaging means extending out from the side of said plate opposite that adapted to overlie a doorjamb, said doorknob-engaging means comprising a wall about perpendicular to said retaining means, said wall including an inverted generally U-shaped doorknob-gripping opening adjacent the lower end thereof, said lock being adapted to be slid down into doorknob-locking position and up out of doorknob engagement.

4,334,706

GUARD MOLDING FOR OUTER SURFACES OF A CAR

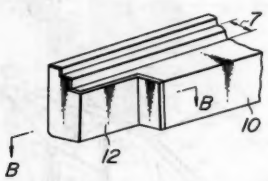
Shojiro Seki, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed May 27, 1980, Ser. No. 153,525

Claims priority, application Japan, May 28, 1979, 54/71988[U]

Int. Cl.³ B60R *13/04*

U.S. Cl. 293—126 **10 Claims**



1. A guard molding adhered along an outer surface of a vehicle, comprising:

(a) a single piece outer shell in direct attachment to the outer surface;

(b) an end portion of said outer shell stepped to form a recess; and

(c) an end cap of constant thickness, said end cap conforming with and being adhered on the end portion and the outer surface of the stepped recess of the guard molding.

4,334,707

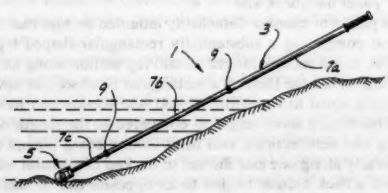
GOLF BALL RETRIEVER

Chester S. Phillips, 19 Claire Ct., Florissant, Mo. 63031

Continuation of Ser. No. 9,862, Feb. 7, 1979, abandoned. This application Nov. 14, 1980, Ser. No. 206,834

Int. Cl.³ A63B *47/02*

U.S. Cl. 294—19 A **1 Claim**



1. A golf ball retriever comprising an elongate handle and a ball gripping and retention means on one end of the handle, said gripping and retention means including a base of a curable synthetic resin material being so sized as to have a width approximately the diameter of a golf ball, said base being of square shape when viewed from the end of the retriever, and four golf ball engaging loops of flexible, resilient, light gauge spring wire extending from the base in a direction generally parallel to the handle and being directly engageable with a golf ball to be retrieved, said loops each being a one-piece member having two spaced apart legs and an end portion connecting the outer ends of the legs, said legs and said end portion being substantially coplanar, said legs each having a respective foot at the other end thereof extending generally perpendicularly to the plane of said legs and said end portion, said feet being imbedded in said base thereby to rigidly cantilever mount said loop to said base, said loops being equally spaced around the base and being adapted to surround a golf ball to be picked up, said end portion of each of said loops being spaced from the base a distance somewhat greater than the radius of a golf ball but less than the diameter of a golf ball, said end portions of said loops on opposite sides of the base being spaced apart a distance somewhat less than the diameter of a golf ball and said loops being movable independently of one another upon said loops engaging said golf ball so that upon the end portions of said loops engaging a golf ball and upon the loops being pushed onto the golf ball, said loops being resiliently and readily forced apart by the golf ball and by the relatively low application of axial force to said handle and, upon the golf ball moving toward the base a distance greater than the radius of the golf ball, the end portions of the loops resiliently moving toward one another thereby to force the ball toward the base and to hold the ball captive between the loops and the base, said handle being telescopically extensible, said gripping and retention means being pivotal with respect to said handle, said retriever further including means for selectively locking said gripping and retention means in any desired angular position with respect to said handle.

4,334,708

ELECTROMAGNET FOR MOVING IRON OBJECTS

Karl H. Westin, c/o Janas, Kvickrotsgränd 158, S-162 42 Vällingby, Sweden

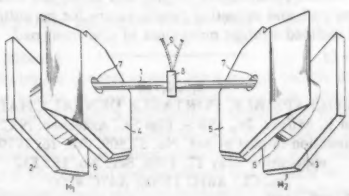
PCT No. PCT/SE79/00202, § 371 Date Jun. 6, 1980, § 102(e) Date Jun. 6, 1980, PCT Pub. No. WO80/00693, PCT Pub. Date Apr. 17, 1979

PCT Filed Oct. 9, 1979, Ser. No. 195,421

Claims priority, application Fed. Rep. of Germany, Oct. 11, 1978, 7810640

Int. Cl.³ B66C *1/06*

U.S. Cl. 294—65.5 **18 Claims**



1. An electromagnet for automatic handling of objects comprising:

a carrying shaft;

two opposing magnetic heads each including more than one electric winding, said magnetic heads being rotatably mounted on said carrying shaft for assuming angular positions relative to each other;

an attachment member positioned at approximately a midpoint of said carrying shaft;

a lifting means connected to said attachment member for raising and lowering the magnetic heads;

said magnetic heads each including a central portion and an inner pole plate having an aperture therein;

said carrying shaft including ends positioned within respective apertures of said magnetic heads to rotatably connect said magnetic heads to said carrying shaft and to permit said magnetic heads to assume angular positions relative to each other;

first windings on each of the respective magnetic heads being connectable to an electrical source for seeking out a metallic object by inducing a voltage in a second winding on each of the respective magnetic heads when the metallic object is approached; and

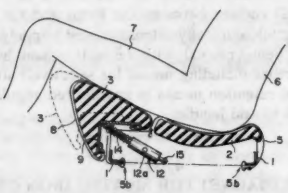
at least one of said first windings on the respective magnetic heads being connectable to a powerful electrical source to twist the magnetic heads towards the metallic object and after a predetermined time said at least one of said first windings being connectable to at least a normal electrical source to effect a lifting of said metallic object.

4,334,709

SEAT FOR VEHICLE

Yoshinori Akiyama, and Shyichi Ueno, both of Yokohama, Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Jan. 7, 1980, Ser. No. 110,325
Claims priority, application Japan, Nov. 19, 1979, 54-6315[U]
Int. Cl.³ A47C 7/02
U.S. Cl. 297—284 **5 Claims**



1. A vehicle seat having a bottom cushion portion comprising a rear pad and an independently moving front pad, a bottom cushion frame having means for resiliently mounting said rear pad thereon, and a front pad adjusting means associated with said bottom cushion frame for adjustably moving said front pad along a straight path away from and back towards said rear pad, said front pad straight movement path forming an angle with the horizontal, said front pad moving forwardly and upwardly, and moving rearwardly and downwardly, relative to said rear pad, said front pad adjusting means including spring means continuously urging said front pad away from said rear pad, and operating handle means for permitting controlled inclined straight movement of said front pad.

4,334,710

COLLAPSIBLE, PORTABLE DENTAL CHAIR

William E. Milner, Jr., 103 S. Elm St., Asheboro, N.C. 27203

Continuation-in-part of Ser. No. 57,509, Jul. 16, 1979. This application May 27, 1980, Ser. No. 153,332
Int. Cl.³ A61G 15/00; A47C 4/00
U.S. Cl. 297—440 **5 Claims**

1. A collapsible, portable and lightweight chair particularly adapted for use in dental examinations, comprising:

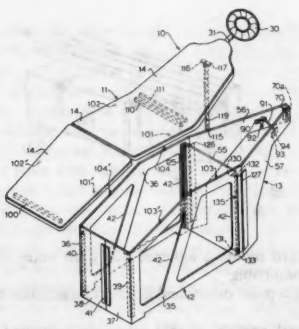
(a) a base frame unit comprising:

(i) a pair of uniform size vertical side panels having vertical outer and inner end edges, bottom support edge surfaces and top edges converging inwardly from the end edges at an upwardly directed obtuse angle;

(ii) a pair of uniform size outer vertical rectangular end panels hinged together along their respective inner vertical edges and in a manner permitting inward folding thereof, said end panels being equal in height to the length of said side panel outer vertical end edges and each end panel having a hinge connection on its respective outer vertical edge to a respective outer end edge of a said side panel so as to establish a generally U-shaped base frame unit with said pair of end panels serving to join said side panels and being hinged thereto in a manner permitting inward folding of said end panels between said side panels for transport, the bottom edges of said end panels providing bottom support surfaces and the top edges of said end panels being horizontally aligned with the tops of said side panel outer end edges;

(b) a back support frame, comprising:

(i) a pair of uniform size vertical back panel members converging outwardly and having opposed elevated vertical outer edges secured together with manually removable fastener means, inwardly located bottom support edge surfaces, vertical inner end edges, horizontal top edges, and other edges defining a cut out portion below said top edges and outwardly from panel portions bounded by said top edges and end edges to provide free standing room under outer portions of said back support frame;



(ii) an inner rectangular panel member joined with detachable fastening means along its outer vertical edges to respective inner vertical edges of said vertical back panel members and additionally joined by detachable fastening means along its said outer vertical edges to the inner vertical end edges of said side panels, said inner panel member having a bottom support edge surface and a top edge surface coinciding with the top edges of said back panel members; and

(c) a platform member detachably mounted on said base frame and comprising a substantially rectangular-shaped leg section, a seat section hinged to said leg section along an inner transverse edge thereof, a rectangular bend section having a width equal to the width of said seat section and having a substantially short length as compared to the length of said leg and seat sections, said bend section being hinged transversely along one end thereof to the end of said seat section, and a back section hinged to an opposite end of said bend section and having an inwardly tapered shape as viewed in plan; and

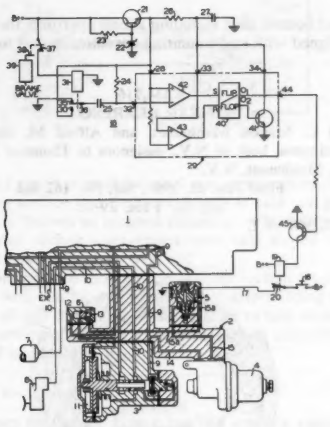
(d) adjustable support means on said back support frame for said head section.

4,334,711

SYSTEM FOR AUTOMATICALLY DELAYING APPLICATION OF A SNOW BRAKE FOR A RAILWAY VEHICLE

Richard J. Mazur, Pittsburgh; Robert D. Dimsa, Irwin, and John T. Pekarcik, Murrysville, all of Pa., assignors to American Standard Inc., Wilmerding, Pa.

Filed Oct. 27, 1980, Ser. No. 201,094
Int. Cl.³ B60T 7/12
U.S. Cl. 303—16 5 Claims



1. A "snow brake" control system for a railway vehicle having brake apparatus to apply and release the vehicle brakes, said brake apparatus including a slack adjuster that is operative in response to movement of said brake apparatus from a brake application position to a brake release position, said "snow brake" control system comprising:

(a) means for providing a first brake control pressure in accordance with the degree of brake desired during a normal brake application;

(b) means for providing a second brake control pressure at a predetermined level to provide a "snow brake" application during release of said normal brake application;

(c) relay valve means subject to said first and second brake control pressures for effecting operation of said brake apparatus;

(d) valve means for connecting one or the other of said first and second brake control pressures to said relay valve means;

(e) electro-pneumatic valve means for establishing or interrupting the communication of said second brake control pressure with said valve means; and

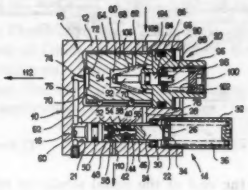
(f) timing means operative in response to the release of said first brake control pressure for controlling said electro-pneumatic valve so as to interrupt said communication of said second brake control pressure with said valve means for a predetermined time period and thereby delay said "snow brake" application for a period of time sufficient to allow said brake apparatus to move from said brake application position to said brake release position.

4,334,712

BRAKING COMPENSATOR DEPENDENT ON THE DECELERATION

Jean-Jacques Carre, Montreuil, and Guy Meynier, Bondy, both of France, assignors to Societe Anonyme D.B.A., Paris, France

Filed Oct. 1, 1979, Ser. No. 80,810
Claims priority, application France, Sep. 28, 1978, 78 28550
Int. Cl.³ B60T 8/26
U.S. Cl. 303—24 C 6 Claims



1. For an automotive vehicle, a brake pressure compensator of the type having a housing defining an inlet receiving pressurized fluid from a source thereof and an outlet communicating pressurized fluid to a vehicle brake, a flow path defined within said housing communicating said inlet and said outlet, a pressure responsive valve member in a first position opening said flow path and in a second position closing said flow path, first resilient means for yieldably biasing said pressure responsive valve member to said first position, said pressure responsive valve member moving to said second position in response to a determined fluid pressure and shuttling between said first and said second positions in response to the pressure of said pressurized fluid at said inlet increasing to a value greater than said determined fluid pressure to communicate a proportion of said increasing fluid pressure to said outlet, and means for varying said determined fluid pressure in response to deceleration of said vehicle, the improvement therein comprising said varying means including a movable pressure responsive pilot communicating with said flow path between said inlet and said pressure responsive valve member and also communicating with said flow path between said pressure responsive valve member and said outlet, said pilot piston movably cooperating with said valve member to open communication between said inlet and said outlet in response to a fluid pressure differential therebetween.

4,334,713

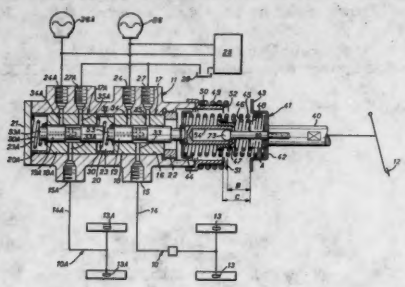
HYDRAULIC CONTROL SYSTEM

Jean L. R. Dauvergne, Fosses, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

Filed May 13, 1980, Ser. No. 150,410
Claims priority, application France, May 21, 1979, 79 12854
Int. Cl.³ B60T 15/06
U.S. Cl. 303—54 13 Claims

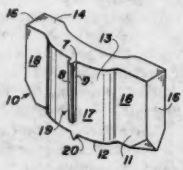
1. A hydraulic control system for a motor vehicle braking apparatus having at least one hydraulic braking circuit, said hydraulic control system comprising a control unit housing, a brake pedal, a hydraulic booster having a fluid pressure source and a reservoir, a distributor valve having a slide movably mounted in said control unit between a rest position for bringing said braking circuit into communication with said reservoir and an operative position for bringing said braking circuit into communication with said fluid pressure source, said slide being subjected to two opposing forces, one of said opposing forces being developed by said pedal and urging said slide to said operative position and the other opposing force being developed by pressure in said braking circuit and urging said slide to the rest position, first resilient stroke simulator means interposed between said pedal and said slide, said first resilient stroke simulator means comprising a spring member operative substantially throughout the pedal stroke, and second resilient

buffer means interposed between said pedal and said control unit housing comprising end-of-stroke buffer spring means



operative near the end of the pedal stroke to relieve further force exerted by said pedal against the slide and to increase resistance to further displacement of the pedal.

4,334,714
KEY TYPE CONNECTOR AND BEARING DEVICE
Robert J. Gargrave, 4717 James Hill Rd., Dayton, Ohio 45429
Filed Apr. 30, 1980, Ser. No. 145,124
Int. Cl.³ F16C *33/00*
U.S. Cl. 308—3 R **17 Claims**

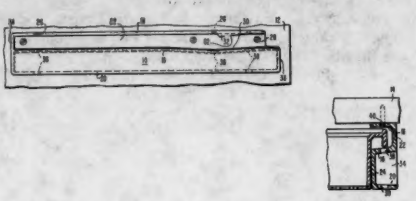


1. Apparatus for insertion in a bore, recess or cavity to provide a fixing or bearing surface for a portion of a shaft or a shaft-like element comprising a plate device including an inner surface portion which disposes most adjacent the central axis of the bore, recess or cavity and an outer surface portion arranged to apply, at least in part, to the wall of the bore, recess or cavity, said device having a leading edge portion and a trailing portion, having regard to the direction of its application, said leading edge portion being provided with spaced anchoring means formed to engage wall portions of the bore, recess or cavity to which said plate device is applied.

4,334,715
TOTE GUIDE
Charles P. Schreiner, Saugatuck, Mich., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Dec. 4, 1980, Ser. No. 212,945
Int. Cl.³ F16C *29/02*
U.S. Cl. 308—3.6 **8 Claims**

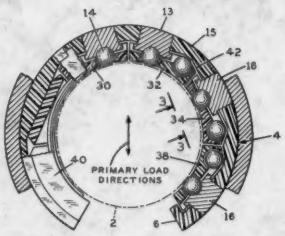
1. A tote guide forming one side of a tote supporting means, said tote guide comprising:

a top rail, a middle rail, and a bottom rail, a first side member interconnecting said top rail and one side of said middle rail and a second side member interconnecting the other side of said middle rail and said bottom rail, each of said top rail and said first side member including a plurality of mounting apertures therethrough; and each of said middle



and bottom rails including access apertures therethrough aligned with said mounting apertures in said top rail.

4,334,716
LINEAR BEARINGS
Robert C. Magee, Manhasset, and Alfred M. Rogers, III, Huntington, both of N.Y., assignors to Thomson Industries, Inc., Manhasset, N.Y.
Filed Jun. 25, 1980, Ser. No. 162,863
Int. Cl.³ F16C *29/06*
U.S. Cl. 308—6 C **11 Claims**



1. A linear ball bearing adapted for use where bearing is subjected to radial forces, comprising:

(a) a bearing sleeve having an opening therein;

(b) a plurality of bearing retainer segments having a closed circuit including a straight track portion containing load carrying balls and a second straight track portion containing non-load carrying balls;

(c) load bearing plates operatively associated with said balls, and

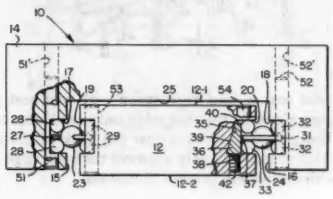
(d) means positioning said bearing retainer segments within said bearing sleeve so that the load carrying balls are positioned such that the critical ball bearing capacity is in two radial directions approximately 180° apart.

4,334,717
BALL SLIDE
Edward C. Polidor, Port St. Lucy, Fla., assignor to Automation Gages, Inc., Rochester, N.Y.
Filed Dec. 8, 1980, Ser. No. 214,180
Int. Cl.³ F16C *29/04*
U.S. Cl. 308—6 R **6 Claims**

1. In a ball slide including an elongate female section, an elongate male section positioned in a recess in said female section and having in opposite sides thereof a pair of opposed, elongate grooves each of which is disposed in spaced, confronting, parallel registry with one of a pair of similar grooves formed in the opposed sidewalls of said recess, and a keeper plate positioned in the space between each pair of confronting grooves, and housing a plurality of roller elements which have rolling engagement with a pair of elongate bearing rods that are mounted in each of said grooves, thereby operatively to

support said male section for reciprocation relative to said female section, the improvement wherein said keeper plates extend transversely across the spaces between said confronting grooves, and project at opposite sides thereof, respectively, into each groove of a confronting pair thereof, and between the pair of bearing rods in the last-named groove,

one of said grooves in one of said sections is deeper than the other of said grooves and has a sloping bottom surface disposed in a plane which extends parallel to the length of said grooves, and which is inclined to a plane extending parallel to said keeper plates,



a tapered gib is mounted in said one groove between said sloping surface and the bearing rods in said one groove, and has thereon an inclined camming surface disposed in coplaner, sliding engagement with said sloped bottom surface on said one groove, and

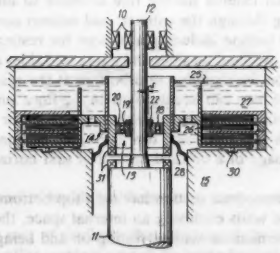
adjustable means is mounted on said one section for engagement with said gib and is operable to effect sliding adjustment of said camming surface relative to said sloped bottom surface of said one groove thereby to effect preloading of said ball bearings.

4,334,718

COUPLING BEARING FOR ROTORS ABOVE CRITICAL SPEED

Dieter Hirt, Augsburg; Richard Steigenberger, Friedberg, and Peter Meinke, Grossinzemoos, all of Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 886,916, Mar. 10, 1978, abandoned.
This application Aug. 13, 1980, Ser. No. 177,803
Claims priority, application Fed. Rep. of Germany, Mar. 14, 1977, 2711065
Int. Cl.³ F16C *39/06*
U.S. Cl. 308—10 **7 Claims**



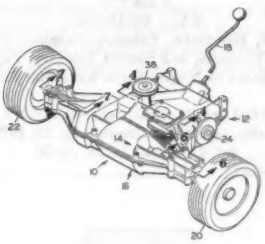
1. An auxiliary bearing mechanism for stabilizing a substantially vertical rotor undergoing radial deflections due to vibration amplitudes produced at speeds at which bending of the rotor takes place, said mechanism comprising a stationary housing; a bearing element supported by said housing and surrounding said rotor and defining with said rotor an annular gap having a radial width at least equal to the maximum radial deflection of said rotor above said speeds at which bending of the rotor takes place; a damping device associated with said bearing element; spring means connecting said bearing element to said housing for centering said bearing element relative to said housing; and two axially spaced magnet rings, one magnet ring encircling said rotor and supported by said bearing element and the other magnet ring attached to said rotor, said magnet rings preventing by mutual interaction contact between said rotor and said bearing element at speeds other than those at which bending of the rotor takes place.

4,334,719

TRANSAXLE

Hans Hauser, Fredericktown, and William J. Clayborne, Mount Vernon, both of Ohio, assignors to The J. B. Foote Foundry Co., Fredericktown, Ohio

Division of Ser. No. 849,011, Nov. 7, 1977, Pat. No. 4,232,569.
This application Nov. 19, 1979, Ser. No. 95,377
Int. Cl.³ F16C *33/10*
U.S. Cl. 308—121 **12 Claims**



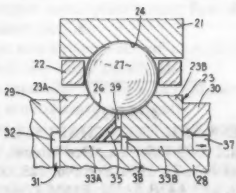
1. A transaxle comprising an upper housing part and a lower housing part, two output shafts extending out of opposite sides of said housing parts, said upper housing part forming upper bearing surfaces for rotatably supporting outer portions of said output shafts, said lower housing part forming grease cavities always positioned below said upper bearing surfaces during operation of the transaxle, said lower housing part also forming lower bearing surfaces inwardly of said grease cavities, and said upper housing part forming grease cavities inwardly of said upper bearing surfaces and always positioned above said lower bearing surfaces during operation of the transaxle.

4,334,720

SPLIT-INNER-RING BALL BEARING WITH LUBRICATION STRUCTURE

Hans R. Signer, Fullerton, Calif., assignor to Industrial Tectonics, Inc., Ann Arbor, Mich.

Filed Feb. 11, 1980, Ser. No. 120,448
Int. Cl.³ F16C *33/66, 37/00*
U.S. Cl. 308—187 **14 Claims**



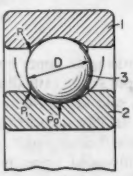
1. In a split-inner-ring ball bearing comprising an outer ring having an outer ball raceway, an inner ring comprised of two annular, adjacent, ring parts which mate to define an inner ball raceway, a plurality of bearing balls located between said inner and outer rings and disposed in said raceways for rolling therealong and a bearing ball retainer located between said inner

and outer rings for retaining or spacing said bearing balls, the improvement which comprises: both of said inner ring parts have a plurality of circumferentially spaced apart, axially extending grooves in the radially inner surfaces thereof, a lubricant supply for supplying lubricant to said grooves in one said ring part, said ring parts have abutting adjacent axial end surfaces forming a radially inner annular chamber located between them out of communication with said inner ball raceway but in communication with the adjacent axial ends of the grooves in both ring parts so that lubricant flowing from the grooves in said one ring part flows into said chamber and thence into the grooves in the other ring part, said one ring part having one or a plurality of first passageways extending outwardly from a selected one or ones of said grooves therein to the inner ball raceway for intercepting a portion of the lubricant flowing in the grooves of said one ring part before it reaches said radially inner annular chamber and the grooves of the other ring part.

4,334,721
BALL BEARING

Hisashi Satoh, Hiratsuka; Yukihiro Akabane, Tokyo; Yukio Shiraiwa, Yokohama, and Shuyou Tsuchiya, Fujisawa, all of Japan, assignors to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 21, 1980, Ser. No. 170,717
Claims priority, application Japan, Aug. 23, 1979, 54-106603
Int. Cl.³ F16C *33/58, 19/06*
U.S. Cl. 308—193 2 Claims



1. In a ball bearing including an outer race, an inner race and ball-like rolling members interposed between said two races, the improvement residing in that said outer race has a circular arcuate orbit groove and that when the orbit groove coefficient of the inner race is expressed as

$$F = \frac{\frac{\rho_1}{D} - 0.5}{\frac{\rho_0}{D} - 0.5}$$

where ρ_0 is the curvature radius of the groove bottom of the orbit groove of the inner race, ρ_1 is the curvature radius of the groove edge of said orbit groove and D is the diameter of said rolling members,

$10 \leqq F \leqq 70$.

4,334,722
DESK MOUNTED CHAIR STOP

Willard D. Brittin, 1507 Elder La., Des Moines, Iowa 50315

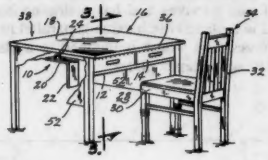
Filed Feb. 22, 1980, Ser. No. 123,735
Int. Cl.³ A47B *83/02;* F16M *13/00*
U.S. Cl. 312—194 4 Claims

1. An unattached desk and chair in combination wherein the desk and chair are freestanding and independent thereof, comprising,

a desk having a knee space defined by a top and opposite side walls,

a stop mounted on said desk extending downwardly from the bottom of the desk top into the center of said knee space, and

a chair having back and seat portions, with said seat portion having a forward edge, said chair adapted to be positioned

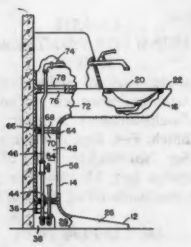


with said seat in said knee space with said seat portion engaging along its forward edge only, said stop and said stop being positioned such that the back of the chair is permitted to move closely adjacent the back edge of desk top without making contact therewith.

4,334,723
DENTAL CABINET

Hans C. Grunert, Adelberg, Fed. Rep. of Germany, assignor to Sybron Corporation, Rochester, N.Y.

Filed May 8, 1980, Ser. No. 147,918
Int. Cl.³ A47B *77/08;* E03C *1/04*
U.S. Cl. 312—209 9 Claims



1. A dental cabinet having free accesses to utility service lines running through the cabinet, said cabinet comprising:

(a) a base section including a bottom for resting on a floor surface, upstanding sides and a top, said sides each having a portion overhanging said bottom at the rear thereof so that said base can be set down on the floor surface over a horizontal utility line running across the floor surface and through said base, said top having an opening to permit the passage of a vertical branch of said horizontal utility line;

(b) an intermediate section having a top bottom, front, rear and side walls enclosing an internal space, the bottom of said intermediate section resting on and being attachable to the top of said base section and the top and bottom of said intermediate section each having an opening which aligns with the opening in the top of said bottom section so that a vertical branch of said horizontal utility line can pass upwardly through said intermediate section; and

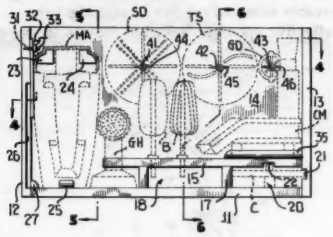
(c) a top section having a bottom wall resting on and attachable to the top of said intermediate section, the bottom wall of said top section having an opening which aligns with the opening in the top of said intermediate section so that the vertical branch of said horizontal utility line can pass into said top section.

4,334,724

CABINET FOR A KITCHEN BLENDER, MIXER, GRINDER, ET AL

Henry F. Rogers, Sr., 9707 Cinamon Creek Dr., Vienna, Va. 22180

Filed Oct. 9, 1979, Ser. No. 83,161
Int. Cl.³ A47B *81/02*; A47F *7/00*
U.S. Cl. 312—280 30 Claims



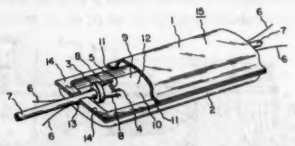
1. A cabinet for kitchen appliance components comprising a bottom wall, a pair of spaced upstanding sidewalls and a rear wall, an intermediate wall disposed above said bottom wall, means on said rear wall for locating a powered mixer arm in supported relationship upon said bottom wall, means on said intermediate wall for locating a grinder in supported relationship upon said bottom wall, means on said intermediate wall for locating a cutter unit on said intermediate wall, means for locating a blender container upon said intermediate wall, means for supporting a plurality of cutting discs upon said rear wall, means for supporting a plurality of beaters relative to said intermediate wall, and means for supporting an instruction book against one of said side walls.

4,334,725

METHOD FOR MAKING A FLUORESCENT LAMP

Toru Teshima, Hadano; Kazuo Ariga, Tokyo; Norimasa Oinuma, Machida, and Mitunari Yoshida, Yokohama, all of Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan

Division of Ser. No. 870,853, Jan. 19, 1978, Pat. No. 4,272,702.
This application Sep. 2, 1980, Ser. No. 183,294
Claims priority, application Japan, Jan. 28, 1977, 52-8949; Jan. 28, 1977, 52-10248
Int. Cl.³ H01J *9/18*
U.S. Cl. 316—19 2 Claims



1. A method of making a fluorescent lamp comprising the steps of:

molding a pair of similarly shaped glass shells having a flat configuration, each of said shells being formed with bonding surfaces peripherally thereof and with a pair of semicircular recesses in said bonding surfaces, with each of said recesses being spaced from the other of said recesses;

affixing a stem to one end of each one of a pair of exhaust tubes;

supporting an electrode filament and a getter plate from each stem, the getter plate being electrically insulated from its associated exhaust tube and electrode filament;

connecting a pair of lead wires to each electrode filament, each pair of lead wires extending longitudinally of an associated one of the exhaust tubes;

coating interior surfaces of said shells with a fluorescent substance;

applying a low-melting point glass adhesive to said bonding surfaces of said shells;

bonding said shells together along said bonding surfaces by fusion welding to form an interior space, said shells being bonded together so that each recess formed on bonding surfaces of one of said shells is disposed opposite an associated recess formed on the bonding surfaces of the other of said shells to form a pair of circular openings;

sealing into each of said openings one of said exhaust tubes having a stem affixed thereto and an electrode filament and a getter plate supported from the affixed stem, and a pair of said lead wires connected to the supported electrode filament, the associated stem, getter plate and electrode filament being sealed with said space, said sealing step being simultaneous with said bonding step;

exhausting through said exhaust tube impure gases from said space;

injecting through said exhaust tube into said space a predetermined amount of mercury and an inert gas; and

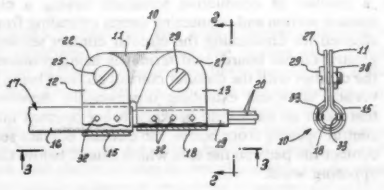
closing said exhaust tube, said lead wires being adapted to be electrically connected to connector pins externally of said lamp.

4,334,726

BONDING DEVICE

August Kund, Glendale, Calif., assignor to Communications Technology Corporation, Los Angeles, Calif.

Filed May 12, 1980, Ser. No. 148,811
Int. Cl.³ H01R *11/10*
U.S. Cl. 339—14 L 3 Claims



1. A bonding device for an electrical cable having a plurality of conductors enclosed by an inner metal sheath which is enclosed by an outer electrical insulating sheath, comprising a generally U-shaped metal plate having first and second arms joined by a center section,

with said first arm having a central curved section for wrapping around said outer sheath, and

with said second arm having a central curved section for wrapping around said inner sheath,

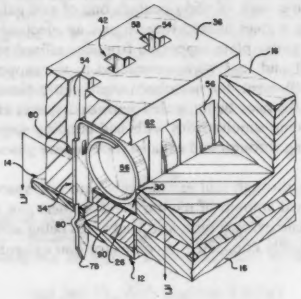
said first arm having a first opening therethrough adjacent the end of said first arm, said second arm having a second opening therethrough adjacent the end of said second arm, and said center section having third and fourth openings therethrough aligned with said first and second openings, respectively,

with said first and third aligned openings adapted for receiving first fastening means for clamping said device onto said outer sheath and with said second and fourth aligned openings adapted for receiving second fastening means for clamping said device onto said inner sheath.

4,334,727
CONNECTOR FOR A LEADLESS ELECTRONIC PACKAGE

William S. Scheingold, Palmyra, and Frank C. Youngfleish, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 28, 1980, Ser. No. 182,266
Int. Cl.[3] H01R *13/22*
U.S. Cl. 339—17 CF 9 Claims



1. A connector for an electronic package of the type having spaced conductive pads on tabs projecting outwardly from two opposing sides, said connector comprising:

a. a frame-shaped housing having four spaced apart walls joined at the ends thereof to define the frame-shape and further to define a central opening therebetween with the distance between two opposing walls being approximately equal to the dimension of the electronic package between the outwardly projecting tabs, further, said two opposing walls having terminal-receiving cavities spaced along therein, said cavities having a vertical slot located in the lower portion of the walls and opening downwardly therefrom, said housing being of an insulating material; and

b. a number of conductive terminals having a circular contact section and connecting means extending from and adapted for connecting the circular contact section to a printed circuit board, said terminals being positioned in the cavities with the circular contact sections being in the vertical slots and extending downwardly therefrom so that upon an electronic package being inserted into the central opening from below, the circular contact sections contact the pads on the tabs which extend below the two opposing walls.

4,334,728
ZERO INSERTION FORCE CONNECTOR CLIP ASSEMBLY

Charles E. Reynolds, Mechanicsburg, and Robert N. Whiteman, Jr., Middletown, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

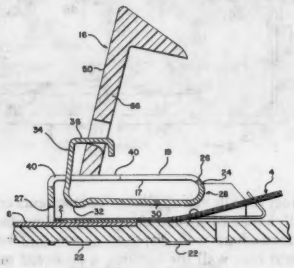
Filed May 7, 1980, Ser. No. 147,667
Int. Cl.[3] H01R *13/50*
U.S. Cl. 339—74 R 7 Claims

1. A zero insertion force electrical connector clip for connecting spaced-apart film conductors on a film to spaced-apart circuit board conductors on a circuit board, said zero insertion force electrical connector clip being of the type comprising a stamped and formed member having a rectangular clip bar, said clip bar having oppositely directed first and second major surfaces, having mounting and supporting means extending from the ends thereof and having first and second side edges extending between said ends, and a plurality of spaced apart cantilever springs extending from said first side edge, said springs having spring arm portions and having bearing portions on said spring arm portions which are between said mounting means and are spaced from said first major surfaces, said clip being characterized in that:

said springs extend from said bearing portions towards said clip bar and beyond said second major surface of said clip bar, said springs having free end portions which are proximate to said second major surface, and

spring lifting means on said second major surface extending between said free ends of said springs and said second major surface, said lifting means comprising a member movably mounted relative to said clip bar

and effective upon movement to move said free ends

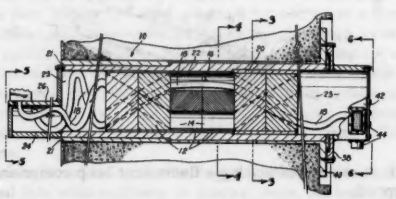


away from said second major surface whereby, upon mounting said clip on said circuit board in straddling relationship to said circuit board conductors, said bearing portions of said springs will bear against said circuit board conductors, and said springs can be lifted from said circuit board by said lifting means to permit positioning of said film beneath said springs whereby upon return of said springs to their normal positions, said film conductors will be pressed against said circuit board conductors by said springs.

4,334,729
PENETRATOR ASSEMBLY

Ralph A. Allen, Covina; Donald S. Madden, Norco, and John T. Zylkowski, Diamond Bar, all of Calif., assignors to Kortech Engineering, Inc., Fullerton, Calif.

Filed Feb. 11, 1980, Ser. No. 120,066
Int. Cl.[3] H02G *3/22*
U.S. Cl. 339—125 R 10 Claims



6. A modular penetration apparatus for extension through an aperture in a wall for providing a passageway through said wall within said aperture but skewed relative to the longitudinal axis of said aperture; the apparatus comprising:

a plurality of substantially solid disks coaxially aligned for serial relationship along the longitudinal axis of said aperture;

at least one opening in each said disk, the combination of such openings defining said passageway; and

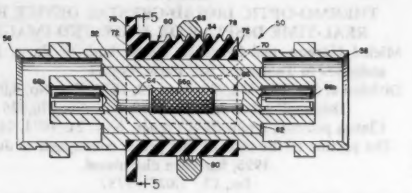
circumambient means retaining said disks in substantially fixed relation to one another within said aperture.

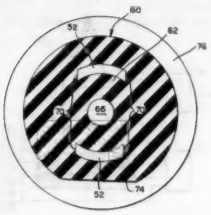
4,334,730

INSULATED FROM GROUND BULKHEAD ADAPTER

William L. Colwell, Norwalk, and Carl W. Schmelzle, Westport, both of Conn., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Nov. 26, 1979, Ser. No. 97,459
Int. Cl.³ H01R *13/40*
U.S. Cl. 339—130 C 17 Claims





1. A coupling for insulated from ground mounting through an opening in a panel, comprising:

an outer shell dimensioned and shaped to extend axially through said opening in said panel, said outer shell having an interruption in the outer surface thereof, said interruption being located intermediate the ends of said outer shell and being defined by an undercut dimensioned to span said panel opening with opposed axially spaced facing shoulders on opposite sides of the opening; and

means for mounting said outer shell to said panel in insulated from ground relationship, said mounting means being disposed in said undercut between said opposed shoulders and being dimensioned and shaped such that at least a portion thereof extends through said opening in said panel, said mounting means thereby cooperating with said interruption so as to be in integral relationship with said outer shell.

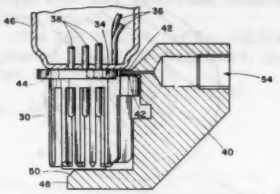
4,334,731

MEANS AND METHOD FOR INJECTING TELEVISION PICTURE TUBE BASES

Ramesh G. Amin, Itasca; Walter C. Hartman, Bolingbrook, and Robert V. Husk, Wooddale, all of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed May 27, 1980, Ser. No. 153,663
Int. Cl.³ H01R *33/74*
U.S. Cl. 339—144 T 6 Claims

1. In a television cathode ray picture tube having a narrow neck terminated by a number of electrically conductive low-voltage pins and at least one high-voltage pin extending axially from the neck terminus, said tube being characterized by having a base for passing and isolating said pins, said base including a port in the side of said base and adjacent to said terminus leading to a cavity surrounding said high-voltage pin, said cavity opening onto said terminus over a substantial portion of the area of said terminus, said port having acceptance means for connection to mating injector means for injecting said cavity with a metered amount of electrically insulative adhesive, such that said base provides for the injection of said adhesive in the exact location desired, and in an amount effective to fill said cavity and electrically isolate said high-voltage pin and adhere said base to said neck terminus.

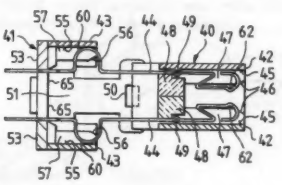


4,334,732

ELECTRICAL CONNECTOR UNIT

Rolf Roeschlein, Paderborn; Udo Tewes, Paderborn-Elsen, and Rüdolf Schmeykal, Neuenbeken, all of Fed. Rep. of Germany, assignors to Nixdorf Computer AG, Paderborn, Fed. Rep. of Germany

Filed Apr. 10, 1980, Ser. No. 138,776
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2915046; Mar. 25, 1980, 3011508
Int. Cl.³ H01R *13/54*
U.S. Cl. 339—176 MP 28 Claims



1. Electrical connector unit with a female multipoint connector attachable onto a frame, the contact clips of which connector, which are constructed flexibly yielding in a plurality of directions and situated opposite one another by pairs in two rows, on the one hand are electrically connected, for example by soldering, with printed conductors of a printed wiring board and on the other hand are capable of making contact with electrical plug-in modules which can be plugged into the female multipoint connector, characterized in that the contact clips (6) show deformations (24), producing flexibility, in the region between the female multipoint connector (5) and a contact clip guide (36), which guide is arranged in front of the printed wiring board (2) and can be coupled with the female multipoint connector (5), and the clips are directly connected with the printed conductors of the printed wiring board (2).

4,334,733

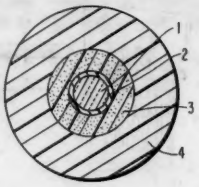
COATED GLASS FIBERS FOR OPTICAL TRANSMISSION

Mikio Takeshima; Masaaki Kawase, both of Mito; Toru Yamanishi, and Masaaki Yoshida, both of Yokohama, all of Japan, assignors to Nippon Telegraph & Telephone Public Corp., Tokyo and Sumitomo Electric Industries, Ltd., Osaka, both of, Japan, part interest to each

Filed Jan. 23, 1980, Ser. No. 114,460
Claims priority, application Japan, Jan. 23, 1979, 54-6722
Int. Cl.³ G02B *5/172*
U.S. Cl. 350—96.33 6 Claims

1. In a glass fiber for optical transmission comprising a primary coat, a thermoplastic resin coat, and a buffer coat be-

tween the primary coat and the thermoplastic resin coat, the improvement which comprises said thermoplastic resin being a



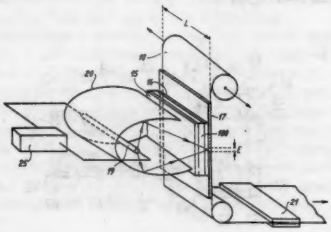
polyamide having a modulus of elasticity of about 2,000 to 8,000 kg/cm^2 at a temperature in the range of 20° to 23° C.

4,334,734

OPTICAL APPARATUS FOR THE REPRODUCTION OF IMAGES USING A LIQUID CRYSTAL CELL

Michel Hareng, and Serge Le Berre, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Oct. 26, 1979, Ser. No. 88,355
Claims priority, application France, Oct. 31, 1978, 78 30852
Int. Cl.^{3} G02F *1/133*
U.S. Cl. 350—331 R **7 Claims**



1. An apparatus for reproducing onto light sensitive paper an image coded as an electrical signal, comprising:

a light source,

projection means for forming a line of light from said light source for exposing said paper;

a linear array of N liquid crystal cells optically interposed between said projection means and said light sensitive paper for modulating the intensity of light transmitted by said cells to said paper, each cell comprising a layer of nematic liquid crystal and electrode means for controlling the transmissivity of the cell and therefore the intensity of light from said projection means transmitted therethrough;

means for transporting said paper past said linear array of liquid crystal cells, so that for any particular position of said paper, light transmitted by said array of N cells defines one line of said image to be reproduced onto said paper;

series-parallel conversion means for receiving said coded electrical signal defining the image to be reproduced and providing to said cells, set of N simultaneous control voltages, each set of control voltages corresponding to one line of said image, one control voltage of ech set being coupled to one of said N cells, each set of control voltages being applied across said cells for a first predetermined duration of time, said sets of control voltages being applied one after another at fixed intervals of time; and

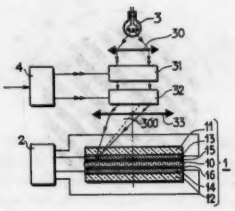
means for causing said light source to emit flashes of light, synchronized with the application of sets of control voltages by said series-parallel conversion means to said cells, each flash having a second predetermined duration substantially shorter than said first predetermined duration and occurring substantially near the end of said first duration, allowing time for said cells to reach a point of maximum contrast define a line of said image, whereby a line of said paper is exposed by a flash of light modulated at maximum contrast by said cells.

4,334,735

THERMO-OPTIC LIQUID-CRYSTAL DEVICE FOR REAL-TIME DISPLAY OF ANIMATED IMAGES

Michel Hareng, and Serge Le Berre, both of Paris, France, assignors to Thomson-CSF, Paris, France

Division of Ser. No. 632,955, Nov. 18, 1975, Pat. No. 4,099,857.
This application Jan. 18, 1978, Ser. No. 870,526
Claims priority, application France, Nov. 21, 1974, 74 38281
The portion of the term of this patent subsequent to Jul. 11, 1995, has been disclaimed.
Int. Cl.^{3} G02F *1/137*
U.S. Cl. 350—351 **2 Claims**



1. A thermo-optical liquid-crystal device for displaying images transmitted in the form of a video signal, the display being a real-time self-erasing display of successive images in the form of transitorily light-scattering points in a transparent medium, comprising:

a cell including a layer exhibiting a nematic state and two substrates for enclosing said layer, said layer being maintained in said nematic state and having a transparent uniformly ordered structure in said nematic state;

selective heating means for delivering heat pulses to points of said layers, said pulses temporarily heating said points into a transparent isotropic liquid state, the selective heating means including:

a radiation source,

optical modulating means for modulating the intensity of said radiation,

optical focussing means for concentrating said radiation on a point located inside said layer, said

optical deflecting means for scanning said layer by said point; and

control means for receiving the video signal and controlling the modulating means and deflecting means responsive to the video signal.

4,334,736

WET CORNEA MICROSCOPE

M. Linton Herbert, 762 E. Michigan Ave., #204, Orlando, Fla. 32806

Filed May 23, 1980, Ser. No. 152,695
Int. Cl.^{3} G02B *3/12, 21/00*
U.S. Cl. 350—418 **21 Claims**

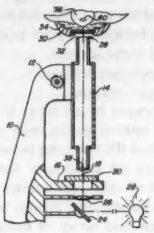
1. A wet cornea microscope for enabling a viewer to see a substantially magnified image of a sample, comprising:

a. a microscope barrel having a hollow tubular interior and first and second ends;

b. an objective lens coupled to the first end of said barrel and positionable in close proximity to the sample; and

c. means, including flat, optically transparent, non-refractive window means, positionable in alignment with the second

end of said barrel for forming an optically transparent, fluid-filled chamber around the cornea of one of the viewer's eyes;



whereby said fluid-filled chamber means effectively eliminates the refractive effect of the cornea aqueous humor interface in the viewer's eye and permits said microscope to form a substantially magnified image of the sample on the retina of the viewer's eye.

4,334,737

ZOOM LENS CAPABLE OF MACRO-PHOTOGRAPHY

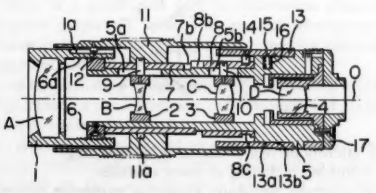
Hideyo Nozawa, Ohmiya, and Tsutomu Mitsuishi, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed May 15, 1980, Ser. No. 150,188

Claims priority, application Japan, Jun. 29, 1979, 54-89433[U]

Int. Cl.³ G02B *7/10*

U.S. Cl. 350—430 **12 Claims**



1. A zoom lens capable of macro-photography comprising first and second movable lens means; first and second cam rings rotatably disposed with respect to the optical axis of the lens and coupled to the first and second lens means, respectively, such that rotation of the first and second cam rings is effective to move the first and second lens means along the optical axis for zooming; means for operatively associating the first and second cam rings so that they rotate as a unit about the optical axis but are capable of relative axial movement with respect to one another; operating means for rotating the first and second cam rings to move the first and second lens means for zooming; and an axially movable change-over member having a pin received in an annular groove on one of said cam rings, movement of said member being effective for moving said one cam ring axially with respect to the other cam ring and for moving one lens means relatively to the other lens means for macro-photography.

4,334,738

METHOD OF PERIMETRIC EXAMINATION OF VISUAL FIELDS

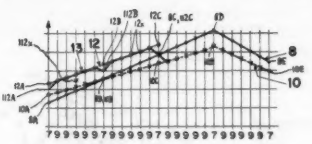
Erich Seckinger, Dübendorf, Switzerland, assignor to Interzeag AG, Schlieren, Switzerland

Filed Aug. 15, 1978, Ser. No. 933,851

Claims priority, application Switzerland, Sep. 9, 1977, 11059/77; Sep. 9, 1977, 11060/77

Int. Cl.³ A61B *3/02, 3/00*

U.S. Cl. 351—39 **10 Claims**



1. A method of testing the visual field of a subject, comprising the steps of presenting to the subject spots of light constituting a group of initial stimulus values at selected test locations of a test field having a predetermined orientation relative to the direction of gaze of the subject; adjusting stimulus values of the respective spots of light until the threshold values which acted as stimuli to the subject at the respective test locations are ascertained; modifying at least some of the initial stimulus values of said group as a function of the corresponding ascertained threshold values; storing the thus modified stimulus values of said group; and repeating at least said presenting step using said stored values instead of said initial stimulus values during a subsequent test of the same subject.

4,334,739

METHOD OF GRAPHICALLY DISPLAYING THE RESULTS OF REPEATED PERIMETRIC EXAMINATION OF VISUAL FIELDS

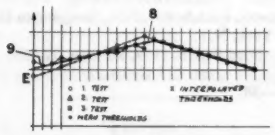
Erich Seckinger, Dübendorf, Switzerland, assignor to Interzeag AG, Schlieren, Switzerland

Filed Aug. 15, 1978, Ser. No. 933,852

Claims priority, application Switzerland, Sep. 9, 1977, 11059/77

Int. Cl.³ A61B *3/00, 3/02*

U.S. Cl. 351—39 **9 Claims**



1. A method of making records of the results of perimetric examinations of the visual field of a subject, comprising the steps of presenting to the subject during each of at least two separate examinations a group of variable intensity stimuli at selected points of a test field which covers an area of the visual field that is individually selected for each of said examinations as to its outline and orientation with respect to the direction of gaze of the subject; storing, during each examination, the perceived threshold values of the stimuli of the respective group; and forming a single composite graphical display with data denoting said stored threshold values obtained during said separate examinations.

4,334,740

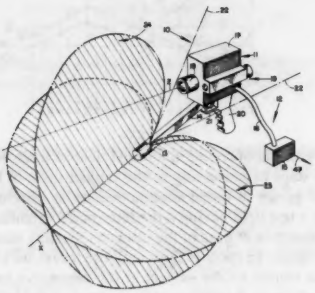
RECEIVING SYSTEM HAVING PRE-SELECTED DIRECTIONAL RESPONSE

William R. Wray, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 941,729, Sep. 12, 1978, abandoned, which is a continuation-in-part of Ser. No. 737,347, Nov. 1, 1976, abandoned. This application Apr. 24, 1979, Ser. No. 32,914

Int. Cl.³ G03B *31/00*

U.S. Cl. 352—11 **60 Claims**



18. A sound photographic system comprising:

a camera having a lens assembly with a predetermined field of view which defines the camera taking axis, said camera during its operation providing sound extending over a given range of frequencies; and

a sound recording apparatus associated with said camera, said sound apparatus comprising:

an array of microphones fixed to said camera outside of said predetermined field of view such that said camera sound is oriented at a predetermined angle of incidence to said array; and

means for spacing the microphones in said array and for combining the output signals thereof so that array preferentially rejects sound from said camera when the latter is made operative, said spacing and combining means includes means for subtracting the output signals of a pair of said microphones to obtain a difference signal, and an integrating channel for integrating said difference signal with respect to time.

4,334,741

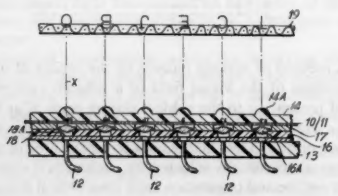
MELDING MASK

Carmine Masucci, Eastchester, N.Y., assignor to Izon Corporation, New York, N.Y.

Filed Sep. 6, 1979, Ser. No. 72,928

Int. Cl.³ G03B *21/11*

U.S. Cl. 353—38 **3 Claims**



1. A reader for displaying a distributed-optical microfiche in which each page or document of recorded intelligence is constituted by a reduced scale image thereof, dissected to form a pattern of dispersed bits, the reader comprising:

(a) a view screen;

(b) means for illuminating said dispersed bits of dissected information on said microfiche;

(c) melding mask means adjoining said illuminating means, said melding mask means inhibiting overlap of information displayed on said view screen and providing substantially equal light distribution at every point in any image projected upon said view screen;

(d) an array of condenser lenses;

(e) microfiche carrier means;

(f) a lens matrix formed by an array of equidistant lenslet;

(g) a plurality of optical paths, said paths defined by the cooperation of said illuminating means, said melding mask means, said array of condenser lenses, said microfiche carrier means and said lens matrix, each of said paths traversing said illuminating means, said melding means, a respective one of said array of condenser lenses, microfiche carrier means, and a respective one of said lenslets of said lens matrix, for projection of said bits onto said view screen;

(h) said array of condenser lenses arranged upon a planar surface, said array being interposed between said melding mask means and microfiche carrier means, each condenser lens within said array aligned with a respective one of said optical paths; and

(i) said lens matrix being interposed between said microfiche carrier means and said view screen, each said lenslet of said lens matrix being aligned with a respective one of said optical paths.

4,334,742

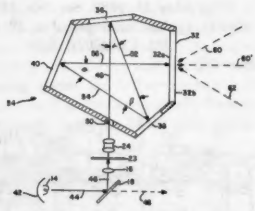
MICROFICHE READER ASSEMBLY AND METHOD

William T. Link, Berkeley, Calif., assignor to Datagraphix, Inc., San Diego, Calif.

Filed Mar. 4, 1980, Ser. No. 127,240

Int. Cl.³ G03B *21/22*

U.S. Cl. 353—78 **10 Claims**



1. A microfiche reader assembly, comprising:

(a) a housing including an inner chamber;

(b) a generally vertically extending projector screen supported by said housing and having a back side facing into said chamber and an opposite front side for viewing from outside said housing;

(c) means for supporting a microfiche in a predetermined position below said chamber;

(d) means for passing a beam of light through at least a segment of said microfiche and generally vertically upwards into said housing chamber at a field angle between about 7° and 13°; and

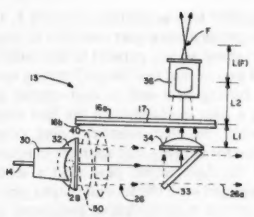
(e) an optical arrangement for directing said passed through beam of light through said chamber and to and through said screen from its backside to its front side for viewing said microfiche segment on said screen, said arrangement including a plurality of light reflecting surfaces located within said housing chamber on different sides of the latter for dividing said passed through beam into at least three straight-line segments between said microfiche and said screen, the longest of said segments contributing no more than about 25 to 40% of the total length of all said seg-

ments and each of said segments extending entirely across said chamber and across at least one other segment, said light reflecting surfaces being positioned relative to said screen and one another such that any high angle light passing into said housing chamber through said screen and onto any of said surfaces is not reflected by said surfaces from said chamber back through said screen, said high angle light consisting of any ambient light passing into said chamber through said screen along paths normal to and at downwardly directed angles with said screen.

4,334,743
OPTICAL ARRANGEMENT FOR USE IN A MICROFICHE READER AND METHOD

William T. Link, Berkeley, Calif., assignor to Datagraphix, Inc., San Diego, Calif.

Filed Mar. 4, 1980, Ser. No. 127,228
Int. Cl.³ G03B *21/14*
U.S. Cl. 353—97 **8 Claims**



1. In a microfiche reader including means for supporting a microfiche in a given area of a predetermined plane and a rectangular projection screen, an optical arrangement for providing an image onto said screen for viewing thereon, said arrangement comprising:

(a) means including a light source for directing a beam of light along a predetermined path through said given area and towards said screen;

(b) a condenser lens located on said beam path between said given area and said light source and including a focal point located on said path between said given area and said screen;

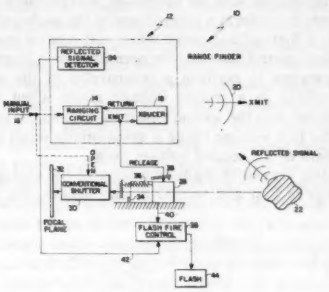
(c) a projection lens assembly located on said path between said given area and the focal point of said condenser lens, said focal point being spaced a predetermined distance from said projection lens; and

(d) means located on said beam path between said light source and said condenser lens for insuring that substantially all of said light from said beam is directed onto the backside of said screen, said last-named means including a correction lens located on said path between said light source and said condenser lens, said correction lens including a rectangular through hole for passing freely a section of said beam sufficient to illuminate just the confines of the backside of said screen and only said confines, and light refracting means around the periphery of said through hole for redirecting onto said screen substantially all of the light from said beam which would otherwise not fall within the confines of said screen.

4,334,744
PHOTOGRAPHIC APPARATUS HAVING SYNCHRONIZED FLASH

William A. Shelton, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 145,614, May 1, 1980, abandoned. This application Jul. 28, 1980, Ser. No. 172,861
Int. Cl.³ G03B *15/05, 13/20*
U.S. Cl. 354—27 **10 Claims**



1. A camera for use solely when the ambient light level is low enough that no appreciable exposure is made upon a film unit by the ambient light while the shutter is open, comprising:

means for initiating an exposure cycle;

ranging means for providing an output representative of the range of a subject to be photographed;

a shutter responsive to actuation of said initiating means for exposing a film unit located in position for exposure to the low ambient light;

an objective lens assembly mounted for movement between first and second positions, said objective lens assembly, when located between said first and second positions, being adapted to focus an image of a subject located at varying distances from said camera at the focal plane of said camera;

means for driving said objective lens assembly from said first position to said second position, said driving means being rendered operative substantially simultaneous with or subsequent to the actuation of said initiating means and said shutter;

a source of artificial illumination;

means for comparing the output of said ranging means with movement of said objective lens assembly as it moves from said first to said second position so as to fire said source of artificial illumination at substantially the same time that said objective lens assembly passes through a zone wherein the subject to be photographed is correctly focused at said focal plane; and

means for stopping said objective lens assembly subsequent to the firing of said source of artificial illumination.

4,334,745
EXPOSURE INDICATING DEVICE FOR A CAMERA UTILIZING ANALOG-DIGITAL CONVERTER

Osamu Maida, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Division of Ser. No. 907,613, May 19, 1978, Pat. No. 4,262,282. This application Apr. 18, 1980, Ser. No. 141,587
Claims priority, application Japan, May 20, 1977, 52/57555; Jul. 15, 1977, 52/84040
Int. Cl.³ G03B *7/00*; H03K *13/02*
U.S. Cl. 354—60 L **7 Claims**

1. An exposure indication device in a camera comprising:

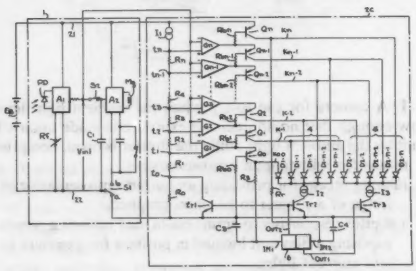
photometering means for generating an analog voltage corresponding to the brightness of a subject;

a plurality of comparators (G1-Gn) for comparing said ana-

log voltage which is received as a common input with respective different digitalized voltages, where the comparator (Gn) which compares said analog input voltage with the highest one of said digitalized voltages is referred to as a first comparator and the comparator (G1) which compares said analog input voltage with the lowest one of said digitalized voltage is referred to as a second comparator;

control means having first and second control states occuring alternatively for permitting said plurality of comparators to perform a comparison of the analog input voltage in a first voltage range when said control means is in the first control state and for permitting said plurality of comparators to perform a comparison of the analog input voltage in a second voltage range when said control means is in the second control state, and the upper limit of the first voltage range is substantially equal to the lower limit of the second voltage range;

display means for digitally indicating the analog input voltage in first and second display modes, the first display



mode being performed with the comparator's outputs other than the first comparator's output which represents that the analog input voltage is above the highest digitalized voltage, and the second display mode being performed with the comparator's outputs other than the second comparator's output which represents that the analog input voltage is below the lowest digitalized voltage; and

operation means for setting said control means and said display means into the second control state and the second display mode, respectively, in response to the first comparator's output which represents that the analog input voltage is above the highest digitalized voltage when said control means is in the first control state and setting said control means and said display means into the first control state and the first display mode, respectively, in response to the second comparator's output which represents that the analog input voltage is below the lowest digitalized voltage when said control means is in the second control state.

4,334,746

PHOTOGRAPHIC LENS BARREL

Hideyo Nozawa, Ohmiya, and Hideshi Naito, Tokyo, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Jun. 18, 1980, Ser. No. 160,535
Claims priority, application Japan, Jul. 13, 1979, 54/88196
Int. Cl.³ G03B *15/02, 3/00*
U.S. Cl. 354—126 **8 Claims**

1. A photographic lens comprising:

(a) a first image forming optical system for imaging an object to be photographed, said first image forming optical system including focusing lens means movable along the optical axis of said first image forming optical system for focusing on the object;

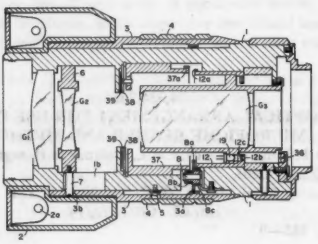
(b) operating means for driving said focusing lens means;

(c) display means capable of displaying the magnification of the object by said first image forming optical system;

(d) a second image forming optical system for imaging the magnification display effected by said display means;

(e) a diaphragm device for controlling the quantity of light passed through said first image forming optical system; and

(f) drive means operatively associated with said operating means for causing said display means to vary said magnification display in accordance with the position of said focusing lens means and for driving said diaphragm device so as to vary the aperture of said diaphragm device in a predetermined manner in accordance with the position of said focusing lens means.



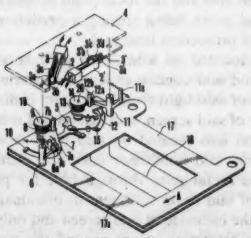
3. A photographic lens according to claim 1, wherein said drive means comprises a relay gear rotatable in response to said operating means about an axis parallel to and radially displaced from the optical axis of said first image forming optical system, the relay gear having first and second output gears, a first member having a gear engaged with the first output gear for rotation therewith, the first member being coupled to the diaphragm device for varying said aperture in accordance with the rotation of the first output gear, and a second member having a gear engaged with the second output gear for rotation therewith, the second member being associated with the display means for varying the magnification display in accordance with the rotation of the second output gear.

4,334,747

DEVICE FOR PREVENTING SPRING-BACK OF SHUTTER BLADE

Fumio Shimada, and Teiji Hashimoto, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo and Canon Denshi Kabushiki Kaisha, Saitama, both of, Japan, part interest to each

Filed Jul. 6, 1981, Ser. No. 280,996
Claims priority, application Japan, Jul. 7, 1980, 55-92893
Int. Cl.³ G03B *15/03, 13/02, 9/08*
U.S. Cl. 354—147 **2 Claims**



1. A device for a camera for preventing spring-back of the shutter blade of a camera shutter having a shutter operation

member connected to the shutter blade so as to make the shutter blade run for exposure within a certain determined field, comprising:

first and second conductive plate springs, said springs being arranged in the neighborhood of the motion path of the shutter operation field and each including a projection engageable with the operation member; and

a fixed contact, said contact being arranged so as to be brought in contact with the second plate spring and forming a switch for the electrical circuit of the camera together with the plate spring;

whereby in synchronization with its motion during exposure the shutter operation member pushes the projection of the first plate spring and then the projection of the second plate spring so as to be braked, while at the end of the motion spring-back is prevented by means of the first plate spring, when the shutter operation member operates the switch through the second plate spring.

4,334,748
PHOTOGRAPHIC CAMERA LIGHT CONTROLLING APPARATUS

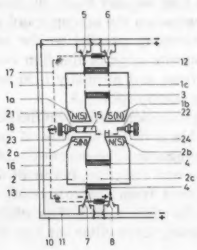
Horst Stacklies, Langerstrasse 35, 7080 Aalen 1, Wildbad 5, and Achim Schindler, Jenaer Strasse 7, 7082 Oberkochen, Wildbad 5, both of Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,687

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1978, 2853232

Int. Cl.³ G03B *9/08*

U.S. Cl. 354—234 **10 Claims**



1. Photographic camera light controlling apparatus for electromagnetically driving a light admitting system of the type having diaphragm aperture and/or shutter exposure blades which are guided for translatory motion or mounted for rotary motion to admit photographic light to the camera along the optical axis thereof, comprising

four spaced apart stator electromagnetic pole means defining therebetween an intervening field space containing a linear path and including first and second transversely opposed stator pole means disposed at opposite sides of such path at one linear end of the path and third and fourth transversely opposed stator pole means disposed at opposite sides of such path at the other linear end of the path and linearly spaced from the first and second pole means, such that the linear path extends from the first and second pole means at the one end of the path to the third and fourth pole means at the other end of the path and is laterally bounded on one transverse side of the path by the first and third pole means and on the opposite transverse side of the path by the second and fourth pole means,

field coil means for electromagnetically energizing the four pole means and arranged for energization alternately in one current flow direction and in the opposite current flow direction and coordinated with the four pole means to energize the first and fourth pole means with one polarity and the second and third pole means with the opposite polarity and alternately to energize the first and fourth pole means with such opposite polarity and the second and third pole means with such one polarity and thereby providing in the intervening field space containing such path oppositely polarized electromagnetic fields which are generated in concordance with the change in current flow direction of the field coil means,

a permanent magnet adapted for operative driving connection with the light admitting system to admit photographic light to the camera and arranged for reciprocal movement along the linear path between the four stator pole means and having the corresponding North and South permanent magnet poles thereof arranged in opposed relation to each other transversely of the linear path and forming a surface magnetized permanent magnet with one permanent magnetic pole facing toward the first and third pole means and the opposite permanent magnet pole facing toward the second and fourth pole means, for permitting the permanent magnet to move reciprocally linearly between a fully immersed electromagnetic field position transversely between the first and second pole means at one end of the path and a fully immersed electromagnetic field position transversely between the third and fourth pole means at the other end of the path, and

one stop means in the vicinity of the first and second pole means at the one end of the path and another stop means in the vicinity of the third and fourth pole means at the other end of the path, the stop means being arranged to stop the movement of the permanent magnet in the corresponding movement direction at a selective corresponding point in the path within the operative range of the electromagnetic field of the transversely opposed pole means at the corresponding end of the path thereat and prior to the reaching of the fully immersed position of the permanent magnet transversely between the opposed pole means at that end of the path, the permanent magnet having sufficient magnetic field strength to urge itself toward such fully immersed position at the respective stop means and thereby independently self-retaining its disposition thereat after deenergization of the field coil means.

4,334,749
CAMERA HAVING AN ELECTROMAGNETICALLY DRIVEN SHUTTER

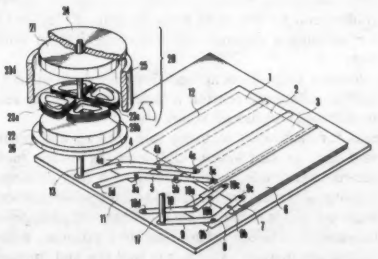
Syuichiro Saito; Nobuaki Date; Ryoichi Suzuki, all of Kawasaki, and Yoji Sugiura, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 26, 1981, Ser. No. 228,318

Claims priority, application Japan, Jan. 25, 1980, 55-7644

Int. Cl.³ G03B *9/08*

U.S. Cl. 354—234 **2 Claims**



1. A camera having an electromagnetically driven focal plane shutter, when comprises:

a camera body including a front plate a portion of which forms a lens mount, said front plate extending generally in a front plane defined by said camera body on the object side of said camera body;

a film advancing sprocket mounted in said camera body at a

given distance from said front plate in the direction toward the rear of the camera body;

a shutter base plate mounted in said camera body and having a film exposure window, said shutter base plate extending generally parallel to and spaced a certain distance apart from said front plate;

a shutter driving arm supported for pivotal movement on said shutter base plate;

a shutter blade group including a plurality of thin plate-like blades pivoted on said shutter driving arm for shutter movement relative to the film exposure window in said shutter base plate; and

a flat motor mounted in said camera body at a position between said front plate and said film advancing sprocket for operatively driving said shutter blade group;

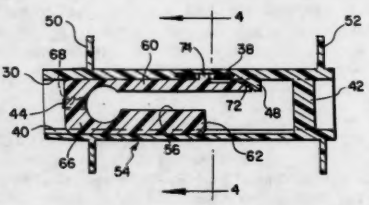
said motor comprising a rotor including one of a permanent magnet and a coil, and a stator including the other one of the permanent magnet and the coil; and an output shaft fixed to said rotor and coupled to said shutter driving arm, said permanent magnet being arranged to provide magnetic flux which is parallel to the axis of said output shaft for interacting with said coil to apply driving torque to said output shaft when current flows through said coil.

4,334,750

FILM ASSEMBLAGE HAVING FILM RELEASABLY ATTACHED TO FILM SPOOL

Peter K. Fichter, Canton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 29, 1980, Ser. No. 220,909
Int. Cl.³ G03B *17/26*; B65H *75/28*
U.S. Cl. 354—275 **3 Claims**



1. A photographic film assemblage adapted for use in a hand-held camera, comprising:

a film cassette;

a spool rotatably supported within said film cassette, said spool including means for defining a slot for receiving a trailing end portion of an elongate strip of film, and means for defining a passageway in communication with said slot;

an elongate strip of unexposed film coiled about said spool with a trailing end portion which is adapted to be received within said slot in said spool; and

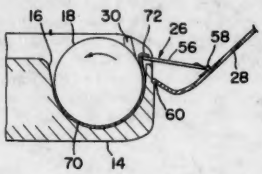
means for releasably securing said trailing end portion of said film to said spool, said securing means including means engageable by an element of a film processor for moving said securing means to a film release position, said securing means being mounted within said passageway for movement between a first operative position, wherein a protrusion thereon extends into said slot and through said trailing end portion of said film so as to secure said trailing end portion to said spool, and a second inoperative or film release position wherein said protrusion of said securing means is no longer extending through said trailing end portion, said securing means further including means cooperative with said spool for preventing the movement of said securing means from said second position to said first position.

4,334,751

EASY-TO-LOAD ROLL-FILM CAMERA

Sei Jinsenji, Tanashi, and Yubao Jibiki, Kawasaki, both of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Oct. 3, 1980, Ser. No. 193,451
Claims priority, application Japan, Oct. 9, 1979, 54-130411; Oct. 9, 1979, 54-130412
Int. Cl.³ G03B *17/28*
U.S. Cl. 354—288 **3 Claims**



1. In a camera for use with a perforated strip of film rolled in a magazine formed to include a mouth protruding tangentially therefrom for feeding out the film, in combination:

(a) a body having a magazine chamber and a spool chamber at opposite ends thereof, the magazine chamber being for accommodating the magazine;

(b) a takeup spool rotatably mounted in the spool chamber for winding up the film unrolled from the magazine in the magazine chamber;

(c) at least one film catcher blade of arcuate cross section pivotally mounted on the takeup spool along one edge of said blade extending parallel to the axis of the takeup spool, the opposite edge of the film catcher blade being biased away from and normally held separated from the surface of the takeup spool;

(d) at least one projection formed on the outer surface of the film catcher blade in the vicinity of said opposite edge thereof for engagement, upon rotation of the takeup spool in a predetermined direction, in one of the perforations in the film unrolled from the magazine, the film catcher blade being held against the surface of the takeup spool in spite of the biasing force when the film is wound up by the takeup spool;

(e) a back cover pivotally mounted on the end of the body where the magazine chamber is disposed;

(f) a magazine orienting member pivotally mounted on the inside surface of the back cover and biased to press the magazine into the magazine chamber, the magazine orienting member being effective, during the closure of the back cover, to engage the mouth of the magazine so as to correctly orient the magazine in the magazine chamber; and

(g) a magazine cradle rotatably fitted in the magazine chamber so as to make frictional contact with the magazine, the magazine cradle being operatively coupled to the magazine orienting member and coacting therewith to correctly orient the magazine in the magazine chamber when the back cover is closed.

4,334,752

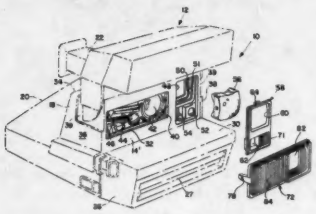
METHOD OF CAMERA MANUFACTURE AND CAMERA APPARATUS

Bruce K. Johnson, Andover, and Fred M. Finnemore, North Reading, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Nov. 28, 1980, Ser. No. 211,333
Int. Cl.³ G03B *17/02, 13/02*
U.S. Cl. 354—288 **3 Claims**

1. In a photographic camera having a housing and a plurality of operational components mounted interiorly of said housing, at least one of said components requiring a final adjustment to

alter its operation to the particular camera into which it is assembled prior to completion of camera assembly and another component being a lens located adjacent said one component and being mountable on said housing, the improvement wherein said housing includes means defining an opening in an exterior front wall surface of the camera and defining a portion for mounting the lens over a part of the opening and wherein said opening is in aligned relation to said one component so as to allow access to said one component and final adjustment thereof by a tool extendable through said opening, and a panel



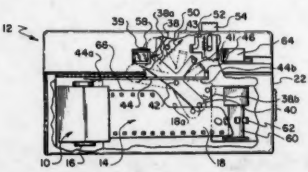
mounted on said housing front wall surface in covering relation to said opening, said panel having a lens opening in aligned relationship to said lens and being constructed to maintain the lens in the mounted condition when assembled, whereby following assembly of said components and said housing into a substantially complete camera, said one component can be finally adjusted by a tool extendable through said opening, and said panel then mounted in covering relation over said opening in said housing and to maintain the lens in the mounted condition.

4,334,753

CAMERA WITH FILM THREAD INDICATING MECHANISM

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 18, 1981, Ser. No. 264,304
Int. Cl.³ G03B *17/00, 1/00*
U.S. Cl. 354—289 **2 Claims**



1. In a photographic camera adapted for use with a film cassette containing an elongate strip of roll film having a full-width exposure portion and a narrower leader portion, the camera having a film supply chamber for receiving the film cassette, a film take-up chamber, a film passageway extending between the supply chamber and the take-up chamber, a film transport mechanism for transporting the film through the passageway and into the take-up chamber, and a shutter mechanism for controlling the exposure interval of the film, the improvement comprising:

a moveable detecting member having a sensing element and a blocking element, the detecting member being movable (1) to a first position in which the blocking element permits operation of the shutter mechanism; (2) to a second position determined by the engagement of the sensing element with a lateral edge of the leader portion of a film located in the film passageway, in which second position the blocking element prevents operation of the shutter release mechanism, and; (3) to a third position determined by the engagement of the sensing element with a lateral edge of the exposure portion of a film located in the film passageway, in which third position the blocking element again permits operation of the shutter mechanism; and

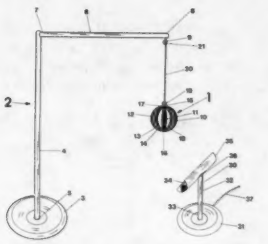
spring means resiliently urging the detecting member to the first position.

4,334,754

STROBOSCOPIC POSING AID

Timothy W. Thompson, 105 S. Madison, Anderson, Ind. 46011

Filed Jan. 30, 1981, Ser. No. 229,826
Int. Cl.³ G03B *15/06*
U.S. Cl. 354—290 **5 Claims**



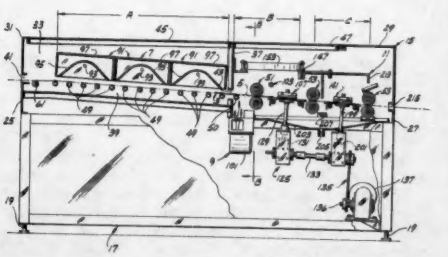
5. A photographer's posing aid comprising a sphere having an outer surface and having provided on the said outer surface thereof a plurality of zones of alternating contrasting colors, wherein the number of said zones is an even integer determined by dividing twice the flicker frequency of a fluorescent light source by a sphere rotational velocity, the said sphere being adapted to be suspended under the force of gravity by a flexible cord means from a support means; support means adapted to support the aforesaid sphere; flexible cord means having two ends wherein one end is connected to the aforesaid support means and the other end is connected to the aforesaid sphere, which cord means is adapted to support and suspend the aforesaid sphere from the aforesaid support means under the force of gravity; and a fluorescent light source adapted to illuminate the aforesaid outer surface of the aforesaid sphere.

4,334,755

APPARATUS AND METHOD FOR PROCESSING LITHOGRAPHIC PLATES

Robert E. Harrell, Manchester; Tedd L. Harrell, Springfield, and Edward H. Parker, Ballwin, all of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Filed Mar. 31, 1980, Ser. No. 135,252
Int. Cl.³ G03D *5/04*
U.S. Cl. 354—299 **29 Claims**



1. Apparatus for processing lithographic plates which have been exposed and developed and which have in their printing

areas a thermal curing agent or agents adapted on being heated to cure to a more abrasion resistant and solvent resistant state, comprising:

means for feeding plates forward one after another in a predetermined path with the exposed and developed face of the plate facing up;

means in a first zone along said path for heating each plate to a temperature such as to effect the curing of the curing agent or agents;

means in a second zone along said path for temperate cooling of each plate without wrinkling the plate;

said feeding means, at least in said second zone, comprising rolls spaced along said path; and

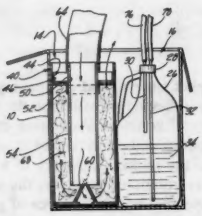
means in a third zone along said path for applying a preservative on said face of each plate.

4,334,756

SELF-CONTAINED DISPOSABLE DEVELOPER/ABSORBER PACKAGE

Norman Michlin, Southfield, and Edward J. Thies, Warren, both of Mich., assignors to Universal Developer Corporation, Detroit, Mich.

Filed Jul. 25, 1980, Ser. No. 172,105
Int. Cl.³ G03D *7/00*
U.S. Cl. 354—300 **15 Claims**



1. A self-contained disposable package for a diazo copy machine of the type including a developer chamber supplied with a development vapor and degassing means for drawing off the ammonia vapors emanating from developed copy, the package comprising:

a carton;

a quantity of developer liquid disposed in a container received within said carton;

a separate quantity of ammonia vapor absorbent material disposed in said carton;

supply and exhaust tubes disposed in said developer container;

a flow tube disposed extending into said carton to direct degassing flow through said ammonia vapor absorbent material;

whereby said carton encloses both a developer liquid and an absorbent material for supply of development vapor to a diazo copy machine and to receive air flow from degassing of said developed copy.

4,334,757

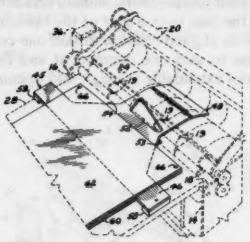
DIFFUSION TRANSFER SHEET REGISTRATION

Thomas L. Byers, P.O. Box 26624, Oklahoma City, Okla. 73126

Filed Sep. 2, 1980, Ser. No. 183,135
Int. Cl.³ G03D *3/08*
U.S. Cl. 354—301 **7 Claims**

1. In combination with a diffusion transfer processor having an elongated entrance opening for admitting a pair of superposed sheets to be processed, a tray containing a chemical bath, a guide overlying the tray for guiding the sheets into and out of the chemical bath and having at least one pair of elongated rollers for progressively advancing the sheets through the processor, the improvement comprising:

a generally T-shaped sheet separator having at least one stem portion projecting, at one end, into the processor intermediate the length of the entrance opening and interposed at its innermost end portion in the chemical bath between the tray and guide,



said separator having a bar portion at least coextensive with the length of the entrance opening and disposed in spaced relation outwardly of the entrance opening; and,

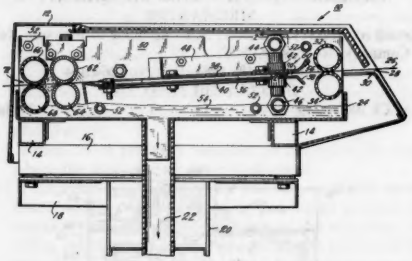
register pin means for joining the edge portion of the sheets adjacent the processor and respectively over and underlying the bar portion on opposing sides of the stem portion.

4,334,758

PLATE PROCESSOR

Joseph Leveille, Chappaqua, N.Y., assignor to Polychrome Corporation, Yonkers, N.Y.

Filed Apr. 10, 1981, Ser. No. 252,732
Int. Cl.³ G03D *5/04*
U.S. Cl. 354—319 **4 Claims**



1. An apparatus for developing offset printing plates, said apparatus comprising:

a developing station including two parallel soaker plates, made of textured stainless steel, defining a developing chamber between them, said soaker plates each having an upstream end and a downstream end and being inclined at a predetermined angle to the horizontal, said upstream end of each said soaker plate being higher than said downstream end thereof, and each said soaker plate having a plurality of ports disposed in a row transverse to the direction in which the printing plates move through said developing chamber whereby developing solution is sprayed on to each surface of the printing plates as they pass through said developing chamber;

reservoir means for containing a supply of developing solution;

means for delivering the developing solution from said reservoir means to the ports of said soaker plates; and

feeding means for delivering a plate to said developing station.

4,334,759

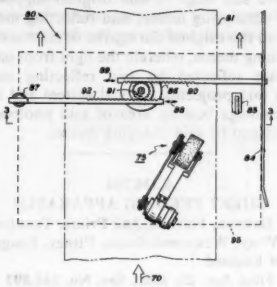
PRECISE CENTER LINE REGISTRATION OF A SUBSTRATE

Don P. Clausing, Brighton, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 3, 1980, Ser. No. 137,081

Int. Cl.³ G03G *15/00*; B65H *9/16, 25/26*

U.S. Cl. 355—3 SH **2 Claims**



1. In a copier having a center line, a document feeding means for feeding documents for copying in seriation, copy processor means for copying each document and sorter means for receiving and sorting the copies, the improvement of precise copier center line registration means, comprising:

side guide means adapted to register copy sheets forwarded toward said processor;

sensor means located opposite said side guide means;

said side guide means and said switch means being symmetrically disposed on either side of the center line and being movable relative thereto at the same speed of movement, and

switch means adapted to be actuated by the copy sheet passing along said side guide means, said switch means causing said side guide means and said sensor means to move in unison until said sensor means senses an edge of the copy sheet, and to terminate said moving when the center line registration is achieved.

4,334,760

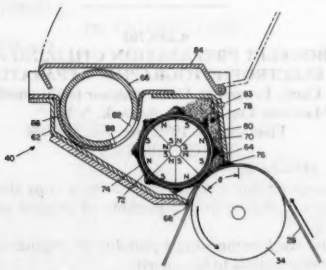
TONER MECHANISM FOR ELECTROPHOTOGRAPHIC RECORDER

Erwin Rodger, Locust Valley, N.Y., assignor to Litton Systems, Inc., Melville, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,773

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—3 DD **8 Claims**



3. An electrophotographic recorder for recording an image upon a sheet of paper having charged surface areas thereon, comprising:

a toner reservoir having an opening therein,

a rotatable toner brush assembly mounted within said opening, and

a rotatable paper roller for conveying said paper to said toner brush assembly within said reservoir opening and for exposing said charged surface areas thereon to said toner,

said rotatable toner brush assembly and said rotatable paper roller moving said toner and said paper in the same direction,

said rotatable toner brush assembly and said rotatable paper roller spaced one from the other to permit said paper and that portion of said toner which adheres to said charged surface areas thereon to pass there between while preventing the passage of additional toner,

said additional toner forming a meniscus upon said paper as said paper passes between said toner brush assembly and said paper roller the size of which controls the length of said paper exposed to said toner, and

said toner reservoir including an adjustable gate for adjusting the size of said reservoir opening and thereby the size of said meniscus.

4,334,761

ELECTROPHOTOGRAPHIC COPYING MACHINE

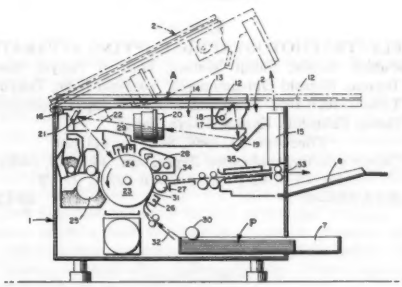
Masao Saito, Kamakurashi; Hiroshi Aoya, Ayaseshi, and Naruhito Yoshida, Fujisawashi, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Sep. 17, 1980, Ser. No. 188,100

Claims priority, application Japan, Nov. 16, 1979, 54-158869[U]

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—3 R **4 Claims**

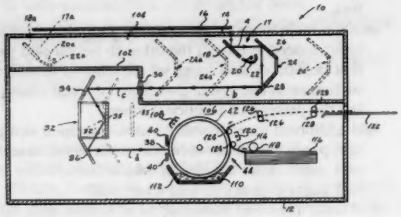


1. In an electrophotographic copying machine having a machine body including first and second sides opposite each other, an upper unit having a reciprocating original holder for holding an original placed thereon, said upper unit being pivotally mounted on said machine body and movable between a closed position during normal operation and an open inclined position when the machine is not operating, a copy paper supply device on said machine body for supplying copy paper to the machine and a receptacle on said machine body for receiving the developed copy paper, the improvement comprising said upper unit being pivotally mounted to said first side of said machine body, said reciprocating original holder of said upper unit extending over only said second side of said machine body and not said first side during reciprocation of said reciprocating holder on said machine body and said copy paper supply device and said receptacle both being located on said second side of said machine body.

4,334,762
SINGLE FIXED POSITION LENS VARIABLE COPY SIZE OPTICAL SYSTEM FOR COPYING MACHINE

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Oct. 15, 1979, Ser. No. 85,110
Int. Cl.³ G03G *15/28;* G03B *27/52*
U.S. Cl. 355—8 **12 Claims**

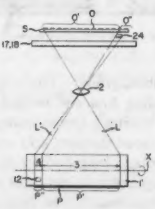


1. An electrophotographic copier including in combination a lens having a pair of refracting surfaces, means including one of said refracting surfaces for forming a first compartment, means including the other of said refracting surfaces for forming a second compartment, means disposed in said first compartment for illuminating a document to be copied, a photosensitive imaging surface disposed in said second compartment, means including said lens for forming on said imaging surface a focused optical image of said document, said image forming means providing an optical path through said lens between said document and said imaging surface, and means disposed in said second compartment for applying a liquid developer to said imaging surface to form a developed image thereon, said means for forming said first and second compartments forming an optical and thermal seal between said compartments isolating said illuminating means from said liquid developer.

4,334,763
ELECTROPHOTOGRAPHIC COPYING APPARATUS

Haruhisa Honda; Shinji Murata, both of Tokyo; Tsutomu Toyono, Higashi Ohizumimachi; Yoshiaki Sone, Tokyo, and Teruo Morikawa, Sagamihara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 21, 1980, Ser. No. 141,920
Claims priority, application Japan, Apr. 24, 1979, 54-51127
Int. Cl.³ G03G *15/28;* G03B *27/54, 27/72*
U.S. Cl. 355—8 **30 Claims**

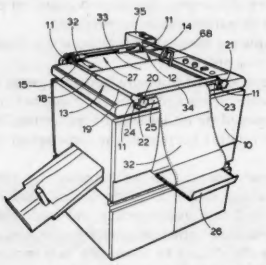


25. An electrophotographic copying apparatus comprising:
- original supporting means for supporting thereon an original to be copied;
- a movable electrophotographic photosensitive medium having an image bearing area and a non-image bearing area set thereon, said non-image bearing area being set on the side edge portion of said photosensitive medium;
- charging means for charging both of said two areas of said photosensitive medium at a charging station;
- original scanning means, including illuminating means movable relative to the original for illuminating the original;
- a projection optical system for projecting the optical image of said original illuminated by said illuminating means upon said image bearing area of said photosensitive medium charged by said charging means;
- reflecting means disposed at a position between said illuminating means and said original supporting means and below the side edge of said original supported by said original supporting means, said reflecting means moving relative to the original during the operation of said original scanning means, wherein the light from said illuminating means reflected by said reflecting means passes through said projection optical system and impinges on said non-image bearing area of said photosensitive medium charged by said charging means.

4,334,764
SHEET FEEDING APPARATUS

Lionel E. J. Rawson, Fairhill, Ash Priors, Taunton, Somerset, and John Wray, Westwood House, Pitney, Langport, Somerset, both of England

Filed Apr. 29, 1980, Ser. No. 144,891
Claims priority, application United Kingdom, May 8, 1979, 7915789
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 SH **16 Claims**



7. Apparatus for automatically feeding sheet material to a photocopier for reproduction comprising means for removably connecting the apparatus to a photocopier, means for feeding the sheet material, said feeding means comprising tooth rollers which are driven so as to rotate by one complete revolution and then stop whereby to feed said sheet material discontinuously so that whilst the sheet material is stationary it may be reproduced, and signal receiving means for receiving signals from the photocopier for controlling operation of the feeding means.

4,334,765
BOOKLET PREPARATION UTILIZING AN ELECTROPHOTOGRAPHIC APPARATUS

Gary A. Clark, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 9, 1980, Ser. No. 158,036
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 SH **17 Claims**

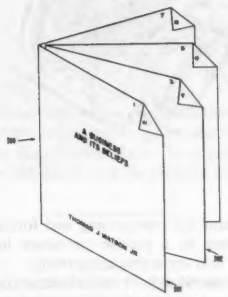
1. In combination, a copier for providing copy sheets carrying images of indicia from a plurality of original documents, including:
- an input stack comprising a plurality of original documents carrying indicia to be copied;
- a reproduction position capable of holding one original document at a time;
- an automatic document feed for automatically feeding successive ones of the original documents from the input stack to the reproduction position;

an imaging surface, capable of receiving at an image area an image of the indicia on the original document at the reproduction position;

optics, intermediate the reproduction position and the imaging surface, for impressing on a plurality of selectable portions of the imaging surface image area the image of the indicia on the original document at the reproduction position;

a source of blank copy sheets;

reproduction means for providing, at an output, copy sheets carrying reduced images of the indicia on original documents;



first controls, operable to cause the document feed to alternately feed odd-numbered and even-numbered original documents from the input stack to the reproduction position;

second controls, operable to cause the optics to select one portion of the imaging surface image area for odd-numbered original documents and another portion for even-numbered original documents; and

third controls, operable to cause the reproduction means to provide, at the reproduction means output, copy sheets, each carrying a reduced image of the indicia from two original documents.

4,334,766

BLADE-TYPE CLEANING DEVICE FOR ELECTROPHOTOGRAHIC COPYING MACHINE

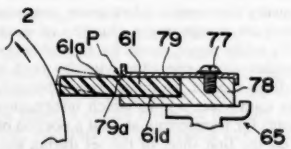
Takashi Sugiyama; Masaya Ogawa, both of Osaka, and Hiroshi Murasaki, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 71,794, Aug. 31, 1979, Pat. No. 4,284,345. This application May 8, 1980, Ser. No. 149,126

Claims priority, application Japan, Sep. 19, 1978, 53-115256; Sep. 19, 1978, 53-115257; Apr. 13, 1979, 54-50010[U]; May 31, 1979, 54-74588[U]

Int. Cl.³ G03G *21/00*

U.S. Cl. 355—15 **6 Claims**



1. A blade-type cleaning device for use in an electrophotographic copying machine having a rotating photoconductor member, said cleaning device comprising:

an elastic blade member held in pressing contact with the surface of the rotating photoconductive member for removing residual toner from the surface thereof during the movement of said photoconductive member; and

holder means for holding said blade member at an angle θ defined by $65° \leqq \theta \leqq 85°$ relative to the portion of a tangent to said surface and which portion extends on the side of the blade toward which the uncleaned portion of said surface is moving, said holder means having a leading edge portion towards said photoconductor and toward which said blade member is urged by said pressing contact, and said holder means holding said blade member for providing a degree of freedom of movement between the surface of said blade member confronting said leading edge portion and said leading edge portion for preventing generation of abnormal noise resulting from vibration of said blade member.

4,334,767

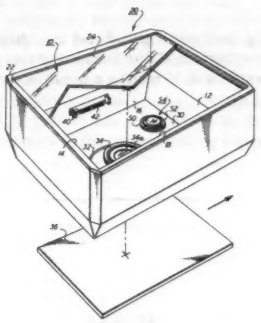
FLASH EXPOSURE SYSTEM

Richard F. Lehman, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 29, 1979, Ser. No. 53,603

Int. Cl.³ G03B *27/80*

U.S. Cl. 355—68 **3 Claims**



1. An automatic exposure control system for a document copying machine comprising:

a housing having a top surface defining an object plane and containing a platen for supporting a document to be copied, a bottom surface having a first aperture accommodating a lens for focusing an image of a document on a photoconductor image plane, the interior surface of said housing being diffusely reflective to light incident thereon;

a flash illumination source located within said housing;

means to pulse said illumination source to produce light flashes which undergo multiple reflections within said housing surfaces to provide a uniformly diffuse irradiation at the platen and

light intensity sensing means positioned below a second aperture in said bottom surface, so as to image only a portion of the document through said aperture.

4,334,768

RECEPTACLE FOR NEGATIVE CARRIERS

Michael H. Parik, San Francisco, Calif., assignor to Professional Photo Products, Inc., San Rafael, Calif.

Filed Jul. 28, 1980, Ser. No. 172,773

Int. Cl.³ G03B *27/62*

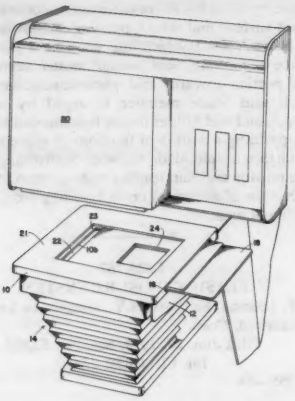
U.S. Cl. 355—75 **4 Claims**

1. For installation in a photographic enlarger wherein a negative in a rigid frame-carrier is positioned between a light source housing and a bellows:

a flat receptacle having rectangular top and bottom walls with openings therein for transmission of light;

blocks on the lower surface of said bottom wall on opposite sides of the opening therein adapted to engage snugly in

and interlock with the opening in the top mounting plate of an enlarger bellows with the outer edges of said blocks



engaging the inner edges of said mounting plate opening to prevent horizontal displacement of said receptacle, and a slot in a side wall to receive a negative carrier.

4,334,769

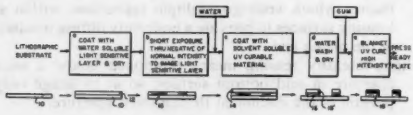
APPARATUS FOR MAKING A LITHOGRAPHIC PRINTING PLATE WITH REINFORCED IMAGE

Howard A. Fromson, 15 Rogues Ridge Rd., Weston, Conn. 06880, and Robert F. Gracia, Scituate, Mass., assignors to Howard A. Fromson, Weston, Conn.

Continuation-in-part of Ser. No. 972,561, Dec. 22, 1978, abandoned. This application Apr. 21, 1980, Ser. No. 142,519

Int. Cl.[3] **G03F** *7/08;* **G03B** *27/30;* **B41M** *5/00*

U.S. Cl. 355—100 **4 Claims**


WATER
GUM
LITHOGRAPHIC SUBSTRATE
1 COAT WITH WATER SOLUBLE LIGHT SENSITIVE LAYER & DRY
2 SHORT EXPOSURE THRU NEGATIVE OF NORMAL INTENSITY TO IMAGE LIGHT SENSITIVE LAYER
3 COAT WITH SOLVENT SOLUBLE UV CURABLE MATERIAL
4 WATER WASH & DRY
5 BLANKET UV CURE HIGH INTENSITY
PRESS READY PLATE

4. Apparatus for making a lithographic printing plate which comprises:

(a) means for exposing to actinic light a lithographic plate having a water soluble light sensitive layer thereon to form an image in said layer;

(b) means for removing the non-image areas of said layer from the exposed plate from paragraph (a);

(c) means for applying a solvent soluble UV material to the image areas of the plate from paragraph (b); and

(d) means for exposing the plate to a UV source having an intensity greater than the imaging light means of paragraph (a), said UV source having an intensity sufficient to cure the UV material to form a press-ready plate having a durable, reinforced cured image thereon.

4,334,770

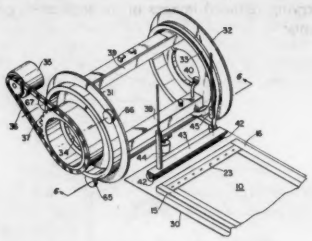
METHOD AND APPARATUS FOR MANIPULATING AND TRANSPORTING IMAGE MEDIA

Robert M. Landsman, Annandale, Va., assignor to LogEtronics, Inc., Springfield, Va.

Division of Ser. No. 972,628, Dec. 22, 1978, Pat. No. 4,262,594. This application Jul. 7, 1980, Ser. No. 166,433

Int. Cl.[3] **G03B** *27/22*

U.S. Cl. 355—104 **17 Claims**



1. An apparatus for transporting and forming a flat image receiving medium to a precise curvature for recording an image thereon, said apparatus comprising:

(a) a pair of spaced cylindrical reference discs mounted for rotation about a common axis, the periphery of said discs defining a precise cylindrical plane therebetween;

(b) a flexible carrier having a first leading edge, said flexible carrier being rigid in a first planar axis parallel to said leading edge and flexible in a second planar axis at right angles to said first axis, said carrier having a pair of reference strips positioned to engage the spaced cylindrical discs, thereby to define a neutral axis of curvature at their respective points of contact with the discs, said carrier also defining a planar surface for supporting and transporting an image receiving media;

(c) gripping means carried by said cylindrical discs for engaging and gripping said first leading edge of said carrier and securing it tangentially to the periphery of said discs; and

(d) means for rotating said discs after said gripping means have engaged said carrier to wrap said carrier around said discs, whereby the planar surface of said carrier is formed into a precise cylindrical plane concentric with the axis of said discs.

4,334,771

VISUALLY DESCRIPTIVE INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL SET

LeRoy J. Ryan, Jr., 5300 W. Hutchinson St., Chicago, Ill. 60641

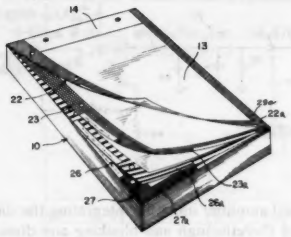
Division of Ser. No. 892,104, Mar. 31, 1978, Pat. No. 4,241,994, which is a continuation of Ser. No. 483,634, Jun. 27, 1974, abandoned. This application Nov. 21, 1980, Ser. No. 209,000

Int. Cl.[3] **G03B** *00/00*

U.S. Cl. 355—133 **1 Claim**

1. A visually descriptive information transmission, storage, and retrieval set comprising a plurality of stacked sheets of substantially white paper, means for separably connecting said sheets together along one edge whereby each sheet may be separated from the set, an image area substantially centrally located on each sheet within which information may be inserted, means for transferring at least a portion of information recorded on the first sheet of the set during use thereof to a predetermined number of other sheets in the set, and colored printed coding means of a different nature on each sheet in the set outside of and between the image area and at least the bottom and side edges of each sheet, so that each sheet may be readily visually identified for routing to and filing in a predetermined place, said colored printed coding means being distinctive for each sheet by having differences from each other in

pattern, color, or saturation, and including at least one substantially rectangular block on each sheet in said coding area between said bordered image area and an edge of said sheet, said



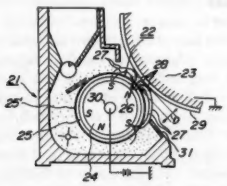
block having printed indicia therein for further determination of at least one of the following: to whom the sheet goes, location of the sheet final resting place, the organizations which send and receive the sheet, and the purpose of the sheet.

4,334,772

ELECTROPHOTOGRAPHIC APPARATUS OF RETENTIVE TYPE

Yoshiro Suzuki, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Jan. 30, 1980, Ser. No. 116,826
Claims priority, application Japan, Feb. 2, 1979, 54/11137
Int. Cl.[3] G03G *15/00, 15/09*
U.S. Cl. 355—3 DD **6 Claims**



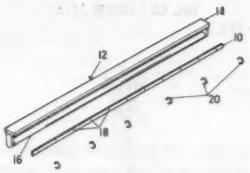
1. In an electrophotographic apparatus for printing a plurality of duplicated copies from the same and single electrostatic charge image once formed on the surface of an electrostatic charge retentive member by repeating developing and transferring operations in succession, a magnetic brush development device comprising: an electrically conductive sleeve; an electrically insulating layer applied on said sleeve, said insulating layer having a magnetic flux density in the range of about 600 to 800 Gauss, a surface resistance higher than about $10^{10}\Omega$-cm, and being positioned a distance in the range of about 2 to 5 mm from the surface of the charge retentive member; a magnet device arranged inside said sleeve to form on a surface of said insulating layer a magnetic brush of a two component developing agent consisting of magnetic carriers having a surface resistance lower than about $10^{8}\Omega$-cm and insulating toners, said toners representing greater than 6% of the total weight of said agent; a doctor blade for defining furs of said magnetic brush, said furs for developing said charge image with said toners to form a toner image on the surface of said charge retentive member, each of said furs having a length less than approximately 6 mm, the difference between said fur length and the distance between said sleeve and said surface of the charge retentive member being less than about 2.0 mm; and a device for transferring said toner image onto a record paper to form a copy.

4,334,773

CLIP-ON LENS TARGET

Norman N. Goldberg, 1408 Baskerville, Madison, Wis. 53716

Filed Jun. 4, 1980, Ser. No. 156,506
Int. Cl.[3] G01B *9/00*
U.S. Cl. 356—124 **6 Claims**



1. A photographic lens test target **(10)** adapted to be mounted on an elongated flourescent light tube **(12)**, comprising:

an elongated strip of opaque, sheet material sized so that it can be fitted over the flourescent light tube **(12)** with acurvature similar to that of the tube **(12)**,

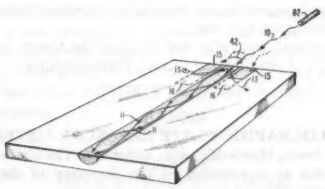
the strip being sufficiently flexible that it can be coiled into a small coil for easy and compact carrying, the strip having a plurality of accurately spaced and sized holes **(18)** formed therein so that when the strip is fitted over the light source **(12)** a standard light pattern is created so that photographs taken of the standard light pattern can be analyzed to determine the accuracy of the optics of the camera making the photographs.

4,334,774

ALIGNMENT OF OPTICAL COMPONENTS

Alastair M. Glass, Rumson; Ivan P. Kaminow, Tinton Falls, and Donald H. Olson, Colts Neck, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 31, 1979, Ser. No. 108,950
Int. Cl.[3] G01B *11/26;* **G01J** *1/00;* **H01L** *31/08;* **G02B** *5/14*
U.S. Cl. 356—152 **9 Claims**

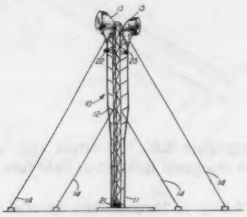


1. A process for aligning an optical component having an output of electromagnetic radiation with a wavepath that comprises a pyroelectric material and that is capable of guiding said electromagnetic radiation, comprising the steps of modulating said output of electromagnetic radiation, directing said output of electromagnetic radiation onto said wavepath, guiding at least a portion of said electromagnetic radiation through said wavepath monitoring a similarly modulating current produced at electrodes in proximity to said wavepath due to a change in dielectric polarization in said pyroelectric material induced by said guiding of said electromagnetic radiation, and adjusting the relative position of said optical component to said pyroelectric material to increase said current.

4,334,775
METHOD FOR DYNAMICALLY DETERMINING THE HORIZONTAL MOTION AND TWIST OF A MICROWAVE TOWER

Jerry D. Breecher, Worcester County, Mass., and Bruce E. Truax, Plainsboro Township, Middlesex County, N.J., assignors to Western Electric Co., Inc., New York, N.Y.

Filed Apr. 3, 1980, Ser. No. 136,843
Int. Cl.³ G01B 11/26
U.S. Cl. 356—152 **2 Claims**



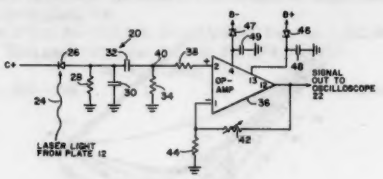
1. A method for dynamically determining the twist and sway of a microwave radio tower, comprising the steps of:
(a) directing a laser beam at a first galvanometer controlled rotatable mirror positioned proximate the base of the tower;
(b) reflecting the beam from the first mirror to a second galvanometer controlled rotatable mirror having an axis of rotation orthogonal to that of the first mirror to scan an area in a plane which is substantially perpendicular to the axis of the tower, which plane contains a first and second retroreflector fixedly mounted, in spaced relation, on the tower;
(c) searching the area by scanning said plane with the laser beam in a predetermined pattern;
(d) reflecting the beam over the same path from whence it came from the beam impinges on the first retroreflector;
(e) detecting the beam reflected from the first retroreflector to initiate interrogation of the galvanometer control apparatus to obtain the positions of the mirrors at the time the beam was reflected by the first retroreflector;
(f) processing the positional information of the mirrors to determine the direction of the beam impinging on the first retroreflector;
(g) repeating steps (c), (d), (e) and (f) to determine the direction of the beam impinging on the second retroreflector;
(h) calculating the position of the first and second retroreflectors based upon the laser beam directions determined in steps (f) and (g); and
(i) determining the twist and sway of the tower using the position of the first and second retroreflectors.

4,334,776
HOLOGRAPHIC PLATE EXPOSURE METER

Robert W. Jones, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 3, 1980, Ser. No. 109,379
Int. Cl.³ G01J 1/42
U.S. Cl. 356—218 **1 Claim**

1. A photographic plate exposure meter for detecting the presence or absence of a single pulse of laser energy impinging on a photographic plate comprising: detector means, an integrating circuit, an amplifier, and display means; said detector means being a photodiode for detecting the presence of laser light from a pulse of laser light energy that is reflected or scattered by said plate and providing an electrical output; said display means being an oscilloscope display means; said amplifier being an operational amplifier having an input and an output, said output being coupled to provide an amplified electrical output to said display means, and said integrating circuit being a passive, resistance-capacitance, integrating circuit coupled between said photodiode electrical output and

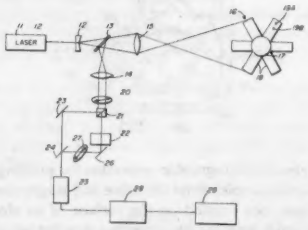


said operational amplifier input for integrating the single pulse signal coupled therethrough and blocking any direct current interference signal.

4,334,777
METHOD OF MONITORING MOTION

Fritz Bien, Billerica, and Morton Camac, Lexington, both of Mass., assignors to Aerodyne Research, Inc., Bedford, Mass.

Continuation-in-part of Ser. No. 708,307, Jul. 26, 1976, Pat. No. 4,086,808. This application Sep. 1, 1977, Ser. No. 829,928
Int. Cl.³ G01B 9/02
U.S. Cl. 356—349 **6 Claims**

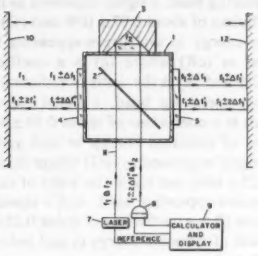


2. In a method of monitoring motion of a mechanical element including determining the direction of motion toward or away from a source, the steps comprising:
mounting on said mechanical element at least a pair of retroreflectors characterized by reflecting beams of light to a fixed detector position independently of the position of said retroreflectors during the motion being monitored,
moving said element through a path of motion to be monitored,
directing coherent light to each of said pair of retroreflectors, and reflecting beams of light to said detector position,
establishing a different carrier frequency of one of said beams relative to the other of said beams, whereby each reflected beam includes a carrier frequency modulated by a signal frequency corresponding to motion of said reflector,
beating the resulting beams at said fixed detector position,
thereby identifying direction of motion as a function of increasing or decreasing beat frequency.

4,334,778
DUAL SURFACE INTERFEROMETER

Robert M. Pardue, Knoxville, and Richard R. Williams, Oak Ridge, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 12, 1980, Ser. No. 186,870
Int. Cl.³ G01B *9/02*
U.S. Cl. 356—349 **3 Claims**



1. An interferometer for measuring relative displacement between opposed parallel plane mirror surfaces along a displacement path perpendicular to said surfaces, comprising:

a polarized beam splitter disposed between said opposed surfaces at a 45° angle with respect to said path of displacement of said surfaces;

a first plane mirror converter disposed between said beam splitter and a first one of said surfaces;

a second plane mirror converter disposed between said beam splitter and the second one of said surfaces;

means for generating and directing a beam of coherent light including two different beam frequencies (f_1 and f_2) orthogonally polarized onto a first area of said beam splitter so that the beam f_1 is transmitted to and reflected from said first and second surfaces sequentially along a first beam path perpendicular to said surfaces, and passing through said first area of said beam splitter; and

a retroreflector disposed in a fixed relationship with respect to said beam splitter to intercept said transmitted and reflected beam f_1 so that said beam f_1 is retroreflected onto said beam splitter at a second area thereof to be further transmitted to and reflected from said first and second surfaces sequentially along a second beam path parallel to said first beam path and passing through said second area of said beam splitter, and said beam f_2 passing through said beam splitter is intercepted and retroreflected onto said second area of said beam splitter to combine with said beam f_1 following said further transmission and reflection of said beam f_1 along a common exit beam path perpendicular to said first and second beam paths, said exit beam including a Doppler frequency shift of said beam f_1 corresponding to relative displacement of said surfaces.

4,334,779
NON-CONTACT OPTICAL APPARATUS FOR MEASURING THE LENGTH OR SPEED OF A RELATIVELY MOVING SURFACE

Jacques Domey, and Marc Rioux, both of Ottawa, Canada, assignors to Canadian Patents & Dev. Limited, Ottawa, Canada

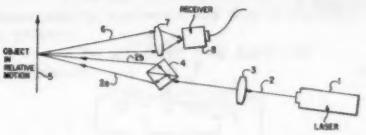
Filed Aug. 4, 1980, Ser. No. 174,574
Int. Cl.³ G01B *9/02*
U.S. Cl. 356—358 **6 Claims**

1. A non-contact optical measurement apparatus for measuring the length or speed of a solid surface in relative motion with the apparatus comprising:

means for producing an optical interference pattern on the surface;

means for receiving modulated light reflected from the surface; and

signal processing means coupled to the receiving means, the signal processing means including converter means for converting the modulated light to a pulse train, detector

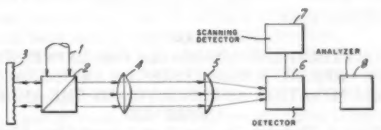


means for detecting a break in the sequence of pulses in the pulse train, correction means for adding pulses to the pulse train during the break in the pulse sequence, and indicator means for indicating the length of the surface or the speed of the relative motion as a function of the corrected pulse train.

4,334,780
OPTICAL SURFACE ROUGHNESS DETECTION METHOD AND APPARATUS

Benjamin J. Pernick, Hampton Bays, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,331
Int. Cl.³ G01B *11/30*; G01N *21/47*
U.S. Cl. 356—359 **11 Claims**



1. A method for optically evaluating the surface roughness characteristics of a specimen having a surface characterized by Gaussian statistics comprising the steps of:

(a) illuminating the surface of the specimen with a source of coherent light;

(b) forming on detecting means located in the far field a joint one-dimensional image and orthogonal Fourier transform spectrum distribution of the light scattered by the surface of the specimen, said joint distribution being characterized by a one-dimensional Gaussian function; and

(c) analyzing the shape of the joint one-dimensional image and orthogonal Fourier transform spectrum distribution to determine the surface roughness characteristics of the specimen.

4,334,781
OPTICAL SENSING SYSTEM

Takeshi Ozeki, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jun. 3, 1980, Ser. No. 156,258
Claims priority, application Japan, Jun. 8, 1979, 54/71282; Jun. 21, 1979, 54/77505
Int. Cl.³ G01J *4/00*; G02B *5/23*
U.S. Cl. 356—368 **17 Claims**

1. An optical sensing system comprising:

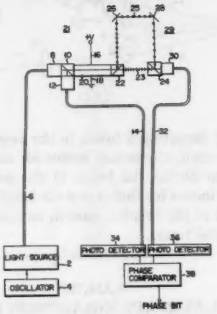
means for generating an input optical signal whose intensity is modulated by an oscillating input signal with a fixed frequency f;

first means for transferring the input optical signal;

sensing means for splitting the input optical signal into two light components, the splitting ratio between the two light

components being varied by a physical quantity to be sensed;

optical power subtracting means for providing a time delay $\tau=(2m+1)/2f$ (m=0, 1, 2, . . . n) between the two light components and composing the two light components to supply an output optical signal having an intensity difference between the two light components modulated by the frequency f;



second means for transferring the output optical signal;

means for detecting the output optical signal supplied from the second means; and

means for comparing the phase of the output optical signal with that of the input signal to generate an in-phase signal or an out-of-phase signal.

4,334,782

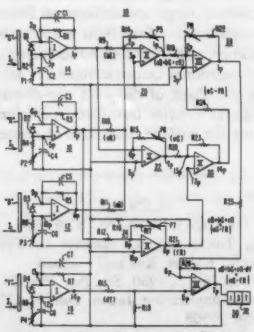
METHOD AND APPARATUS FOR EXPRESSING RELATIVE BRIGHTNESS OF ARTIFICIAL ILLUMINATION AS PERCEIVED BY THE AVERAGE OBSERVER

William A. Thornton, Jr., Cranford; Edward Chen, Glen Rock; Edward W. Morton, Teaneck, and Dorothy Rachko, Passaic, all of N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 25, 1980, Ser. No. 181,338

Int. Cl.³ G01J *3/50*

U.S. Cl. 356—406 **7 Claims**



4. Apparatus for expressing as a number the relative brightness of artificial illumination as it is perceived by the average observer, which apparatus comprises:

means for extracting from the illumination to be measured, portions of the illumination spectrum which fall within the following radiation bands: a blue-appearing narrow band having a mean wavelength of from about 440 nm to about 460 nm, a green-appearing narrow band having a mean wavelength of from about 520 nm to about 540 nm, a yellow-appearing narrow band having a mean wavelength of from about 570 nm to about 590 nm, and a red-orange-appearing narrow band having a mean wavelength of from about 610 nm to about 630 nm;

means for generating from said four extracted radiation bands, a series of six signals which bear the following proportional relationship to one another: a signal expressed as (aB) where (a) is a coefficient of about $0.23\pm10\%$ and (B) is the watts of radiation energy in said blue-appearing band, a signal expressed as (bG) where (b) is a coefficient of about $0.97\pm10\%$ and (G) is the watts of radiation energy in said green-appearing band, a signal expressed as (cR) where (c) is a coefficient of about $0.33\pm10\%$ and (R) is the watts of radiation energy in said red-orange-appearing band, a signal expressed as (dY) where (d) is a coefficient of about $0.19\pm10\%$ and (Y) is the watts of radiation energy in said yellow-appearing band, a signal expressed as (eG) where (e) a coefficient of about $0.25\pm10\%$ and (G) is the watts of radiation energy in said green-appearing band, and a signal expressed as (fR) where (f) is a coefficient of about $0.25\pm10\%$ and (R) is the watts of radiation energy in said red-orange-appearing band; and

means for combining the generated signals in the following manner: aB plus bG plus cR minus dY plus (the larger of eG and fR minus the smaller of eG and fR), and means for expressing said combined signals as a number.

4,334,783

MIXING DEVICE

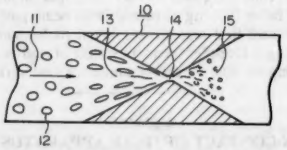
Yukinori Suzaka, Ooita, Japan, assignor to Showa Denko Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 17, 1979, Ser. No. 104,100

Claims priority, application Japan, Dec. 21, 1978, 53-156921; Oct. 26, 1979, 54-137737

Int. Cl.³ B28C *1/16;* **B01F** *5/06*

U.S. Cl. 366—69 **3 Claims**



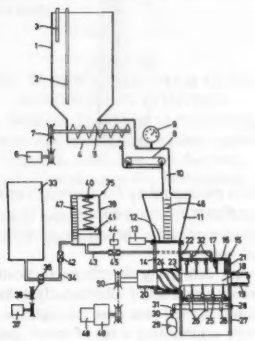
1. A mixing device suitable for use in the uniform mixing of polymer substances in a molten state, said mixing device including at least one mixing nozzle comprising (i) an orifice portion and (ii) at least one zone selected from an upstream compression zone and a downstream diffusion zone, wherein the ratio of the maximum opening cross-sectional area of said zone to the minimum opening cross-sectional area of the orifice portion is 100 or more; and the axial length of said zone is not less than $2\sqrt{S_2/\pi}$ mm, wherein S_2 is the minimum opening cross-sectional area of said orifice portion.

4,334,784

METHOD FOR PROCESSING THERMOPLASTICS OR THERMOSETTING PLASTICS

Kaspar Engels, Mannheim, Fed. Rep. of Germany, assignor to Draiswerke GmbH, Mannheim-Waldorf, Fed. Rep. of Germany

Continuation of Ser. No. 811,185, Jun. 29, 1977, abandoned.
This application Aug. 3, 1979, Ser. No. 63,401
Claims priority, application Fed. Rep. of Germany, May 11, 1977, 2721169
Int. Cl.³ B28C 7/04
U.S. Cl. 366—76 7 Claims



1. In a method of processing plastics comprising supplying a batch comprising a predetermined quantity of material to be processed to a container having mixing members therein, causing the batch of material to be gelled by heat produced by friction as the mixing members are moved through the batch of material, expelling the entire batch of processed material from the container, and, only after said expelling step, repeating the supplying, causing and expelling steps with another batch of material, the improvement by which a batch of material may be continuously formed while another batch is being processed, comprising the steps of:

continuously providing material to be processed in a continuous, constant, gravimetrically-determined quantity stream, whereby a constant weight of material is provided per unit of time, wherein the rate of material being provided is sufficient to provide said predetermined quantity batch of material in approximately the time necessary to complete said supplying, causing and expelling steps;

temporarily storing the material being continuously provided in said providing step until a batch of approximately said predetermined quantity has been accumulated; and

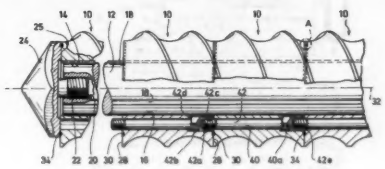
feeding the entire amount of temporarily stored material to the container at predetermined cyclic time intervals corresponding to the accumulation of a batch of approximately said predetermined quantity during said temporarily storing step, whereby said time intervals will also necessarily approximate the time necessary to complete said supplying, causing and expelling steps, and wherein said feeding step constitutes said supplying step.

4,334,785

SHAFT FOR WORKING MATERIAL ON MACHINES FOR WORKING MATERIALS OF SOLID, LIQUID, PLASTIC AND/OR HIGHLY VISCOUS CONSISTENCY

Josef A. Blach, Asperg, Fed. Rep. of Germany, assignor to Automatik Apparate-Maschinenbau H. Hench GmbH, Groossostheim, Fed. Rep. of Germany

Filed Jun. 18, 1980, Ser. No. 160,593
Claims priority, application Fed. Rep. of Germany, Jun. 18, 1979, 2924462
Int. Cl.³ B01F 7/08; B29B 1/04
U.S. Cl. 366—79 11 Claims



1. Processing shaft for working materials of solid, liquid, plastic and/or highly viscous consistency, comprising:

(a) a driving shaft and at least three sleeve-type work segments arranged to be mounted on said driving shaft for rotation therewith;

(b) each of said work segments including end faces, adjacent end faces of adjacent work segments abutting against each other;

(c) at least one clamping device associated with each two of said adjacent end faces for sealingly pressing said adjacent end faces against each other in axial direction;

(d) at least one of each of said adjacent end faces being provided with an endless groove extending around the driving shaft; and

(e) a washer received in said groove for being compressed between adjacent end faces.

4,334,786

PROCESS AND MECHANISM FOR EVOLUTIVE PULP FLOW REGULATION

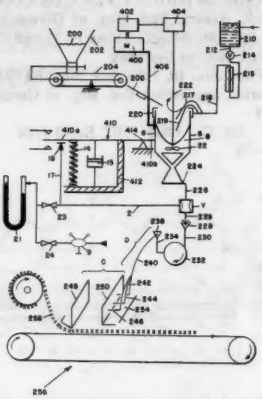
Adrien Delcoigne, Chantilly, and Jacques Lanneau, Breuil le Vert, both of France, assignors to Saint Gobain Industries, Neuilly, France

Filed Jan. 15, 1979, Ser. No. 3,415
Claims priority, application France, Feb. 8, 1978, 78 03473; Feb. 8, 1978, 78 03474; Feb. 8, 1978, 78 03475
Int. Cl.³ B01F 7/22, 11/00, 15/02, 15/04
U.S. Cl. 366—132 31 Claims

1. For evolutive pulp flow rate setting through piping, a process preventing deposits of said pulp in a narrow channel in said piping comprising:

subjecting piping portions adjacent the said narrow channel where deposit is likely to occur to constantly varying change of shape while maintaining a continuous flow of pulp through said narrow channel,

subjecting said piping portions to a star shape with sharp angles,



and constantly varying the position of said sharp angles to position the sharp angles under any deposits to remove them from the piping.

4,334,787

TWO-COMPONENT DOSING APPARATUS

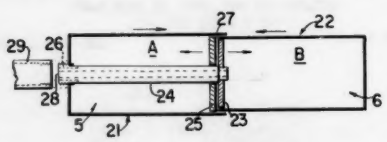
Hermann Kluth; Robert Bachmann, and Jürgen Wegner, all of Düsseldorf, Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Jun. 23, 1980, Ser. No. 162,206

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1979, 2927584

Int. Cl.³ B01F *15/02, 15/04*

U.S. Cl. 366—162 **6 Claims**



1. An apparatus for dosing a two-component product having a predetermined mixing ratio, which comprises two chambers separated by a pair of sealing pistons, the pistons being displaced simultaneously in opposite directions from a centrum, a mixer means arranged at the outer longitudinal end of a first chamber and communicating with the second chamber, and a component line connecting the second chamber with the mixer means and leading centrally through the first chamber,

wherein each chamber comprises a cylinder pot having a sealing piston, the diameter of the first cylinder pot being greater than that of the second cylinder pot, the cylinder pots being arranged so that the first pot slides over the second cylinder pot; wherein the component line comprises a tube leading through the first cylinder, said tube being rigidly connected to and emptying into the mixer means, which is arranged at the closed end of the first cylinder pot, and the piston of the first cylinder pot being entrained upon the tube; and wherein the piston of the second cylinder is rigidly connected to the tube, the second cylinder pot opening into the tube.

4,334,788

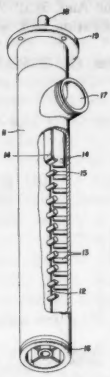
PIN ACTION MIXING PUMP

Robert M. Miner, 1855 Gendale, Casper, Wyo. 82601

Filed Jul. 15, 1980, Ser. No. 169,138

Int. Cl.³ B01F *7/18*

U.S. Cl. 366—303 **2 Claims**



1. A pin action mixing pump for thorough mixing of materials without significant frothing comprising in combination,

a rotor having extending therefrom a set of substantially cylindrical pins,

a stator having extending therefrom in positions meshing with the rotor pins a set of substantially cylindrical pins so that the rotor carried pins pass through the stator carried pins, thereby establishing a set of mixer pins,

a fluid transmission passageway extending between said rotor and stator pins, and

sets of semi-cylindrically shaped pins located on each end of said rotor to comprise pumping pins for engaging fluid in said passageway to move it along said passageway in response to rotation of said rotor with the flat surfaces of said semi-cylindrically shaped pins disposed at an angle urging the materials through the mixing pins at a proper rate for intimately mixing without unnecessary frothing.

4,334,789

MIXING AND KNEADING TOOL

Friedhelm Eusterbarkey, Bad Pyrmont, Fed. Rep. of Germany, assignor to A. Stephan u. Söhne GmbH & Co., Hameln, Fed. Rep. of Germany

Continuation of Ser. No. 19,433, Mar. 12, 1979, abandoned. This application Apr. 18, 1980, Ser. No. 141,566

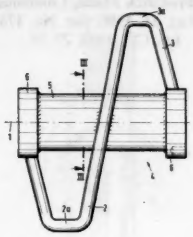
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843369

Int. Cl.³ B01F *7/32*

U.S. Cl. 366—343 **10 Claims**

1. A blade adapted for use on a driving shaft which rotates around an axis, the blade being further adapted for mixing and kneading dough and the like, comprising: an element with a first end and a second end, the element being shaped such that the element defines a continuous curve having a first loop and a second loop, and which extends around the axis of the shaft in a manner that an imaginary straight line segment connecting the ends is parallel to the axis, the first loop and the second loop are mirror images of each other and are serially connected to each other between the first end and the second end, and wherein the curve, as viewed normal to the axis, traces out a generally sinusoidal projection of period equal to the straight

line segment with the loops approximately apices of the sinusoid, and wherein the curve, as viewed along the axis, traces out



an elongated generally rectangular projection, the projection having rounded ends.

4,334,790

TYPE DISC TYPEWRITER WITH ELECTRONIC POSITIONING CONTROL

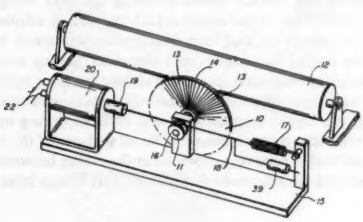
Manfred Link; Diethelm Puch, both of Nuremberg, Fed. Rep. of Germany; Peter Zahner, Schwab-hausen, Austria, and Karel Suc, Furth Kreutles, Fed. Rep. of Germany, assignors to Triumph Werke Nurnberg A.G., Nuremberg, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,541

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832954

Int. Cl.³ B41J *1/30*

U.S. Cl. 400—144.2 **4 Claims**



1. In a typewriter comprising

a shaft,

means supporting said shaft for rotation;

a print disc mounted for rotation with said shaft, said disc having an array of radial spokes bearing characters to be printed,

a keyboard for generating signals representing characters on said disc to be printed,

means for digitally encoding said signals,

means for converting said encoded signals into voltages whose magnitude represents the amount of rotation to be imparted to said disc to position a selected character thereon at a printing position opposite a printing hammer, and

positioning means for rotatably moving said shaft to position a selected character on said disc at said printing position in response to said voltages,

said positioning means comprising a balanced force system including spring means connected to apply forces urging said shaft in one rotational direction, and drive means energized by said voltages connected to apply forces uring said shaft in the opposite rotational direction thereby to establish an equilibrium of forces at a selected position in a given time.

4,334,791

DEVICE FOR CONTROLLING THE TYPING ACTION OF A SINGLE TYPE CARRYING ELEMENT FOR TYPEWRITERS

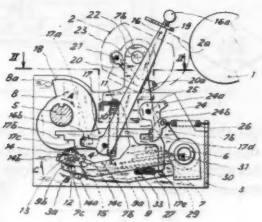
Gian P. Barozzi, and Giancarlo Horeschi, both of Tokyo, Japan, assignors to Xelavis S.A., Panama City, Panama

Filed Jul. 10, 1980, Ser. No. 168,275

Claims priority, application Italy, Jul. 11, 1979, 24282 A/79

Int. Cl.³ B41J *1/60, 7/92*

U.S. Cl. 400—166 **7 Claims**



1. In a printing machine having a platen, a printing element juxtaposed with said platen and formed with a multiplicity of type characters including large and small characters selectively juxtaposable with said platen for printing upon a paper interposed between said element and said platen, selector means operable by respective keys for selectively rotating said element to juxtapose each character with the platen, and a mechanism for impacting said element against said platen, the improvement wherein said mechanism comprises:

a support for said element pivotally mounted for swinging movement about an axis parallel to said platen;

a spring stressable to generate impact energy;

means for coupling said spring to said support for imparting inertial displacement to said suppport about said axis;

means for decoupling said spring from said support prior to full impact of said element against said platen whereby inertial displacement of said support free from action by said spring continues beyond the point at which said spring is decoupled from said support;

manual control means operatively connected to said decoupling means for varying said point to adjust the degree of impact; and

automatic control means responsive to said selector means and operatively connected to said decoupling means for varying said point to modify said impact in accordance with the size of the character juxtaposed with said platen.

4,334,792

DESTINATION-REFERENCED TAB, OPERATIONS FOR TYPEWRITERS THAT STORE TEXT

William F. Joest, III; William R. McCray, and Edward V. Rutkowski, Jr., all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 27, 1979, Ser. No. 79,627

Int. Cl.³ B41J *25/18*

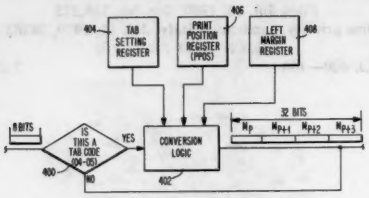
U.S. Cl. 400—279 **8 Claims**

1. For use in a typewriter that stores text and includes means for identifying printing positions along a line according to position numbers and means for storing a code representative of a present printing position, means for associating position numbers in storage with tab selections, and key means for generating a predefined tab code responsive to an operator actuation, a tab code converter comprising:

logic means, responsive to the tab code for initiating a code conversion;

means, responsive to said initiating means, for producing in a set of storage locations a composite tab code that includes, at one end, a first series of bits in a predefined pattern that includes the composite code is a tab code and

a second series of bits in a predefined pattern at the other end of the composite code that indicates the composite coded is a tab code, said code producing means including means for accessing, from a tab storage, the code repre-



sentative of the destination printing position for an initiated tab operation and for storing such code at a storage location between said first and second series of bits as part of the composite code.

4,334,793

PORTABLE SKI WAX APPLICATOR

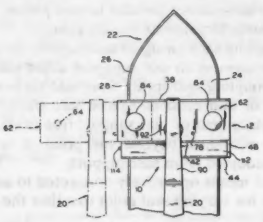
Arnold M. Thompson, Wheaton, Ill., assignor to Gold Lode, Inc., Lisle, Ill.

PCT No. PCT/US79/00167, § 371 Date Mar. 27, 1980, § 102(e) Date Mar. 27, 1980, PCT Pub. No. W080/01880, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 16, 1979, Ser. No. 196,731

Int. Cl.³ A63C *11/08*

U.S. Cl. 401—1 **7 Claims**



1. A portable ski wax applicator which comprises: a container having heat-conductive walls defining a wax-receiving well and a removable cover rendering the container substantially splash-proof in normal use, said walls including a flat bottom wall and an end wall extending obliquely from said bottom wall and having an orifice extending therethrough, valve means extending through said orifice and projecting outwardly from said end wall, spring means resiliently urging said valve means outwardly to close said orifice, whereby pressure exerted on the outer end of said valve means serves to meter liquid wax from said well through said orifice and to the exterior of said end wall, an electrical heating element mounted on said container for heating the walls and liquefying wax contained in said well when energized, a handle adapted to be grasped manually for moving the applicator along a ski surface with said end wall generally parallel to the surface while pressing the outer end of said valve means against the surface to deposit liquid wax thereon, and then for moving the applicator along the surface with said bottom wall adjacent to and generally parallel to the surface for spreading the deposited wax on the surface, means for connecting said handle directly to said cover, whereby the cover may be removed by grasping and moving the handle relative to said walls, and means for removably connecting said cover to said walls alternatively in covering and uncovering positions with respect to said well.

4,334,794

SELF SHARPENING PENCILS

William W. Rader, Gates Mills, Ohio, assignor to Cal W. Hay, Gates Mills and Frederick Mann, Columbus, both of, Ohio

Filed Aug. 11, 1980, Ser. No. 176,933

Int. Cl.³ B43K *29/06*

U.S. Cl. 401—50 **10 Claims**

1. In a self-sharpening pencil, a tubular casing having an elongated slot in said casing, at least one lead guide, positioned within said casing, advance and retract means comprising a manually operable slide, a lead carrier secured to said slide and disposed within said casing, the extent of linear movement of the advance and retract means carrying the lead being restricted by the ends of the slot in which the slide is adapted to advance or retract the said lead, a sharpener positioned in the tapered tip end of said casing, said sharpener having an abrasive member having inner, conically shaped abrasive surfaces, the said lead being adapted to be linearly translocated through the sharpener and in contact with said surfaces during movement of the slide to simultaneously file all surfaces of the outer end of said lead, a reservoir provided in the casing between the lead guide and the sharpener to accommodate filings from said lead.

4,334,795

BALL AND SOCKET JOINT

Paul Westphal, Lemförde, Fed. Rep. of Germany, assignor to Lemförder Metallwaren AG, Fed. Rep. of Germany

Filed Apr. 9, 1981, Ser. No. 252,344

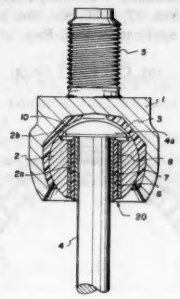
Claims priority, application Fed. Rep. of Germany, Jul. 30, 1980, 3028869

Int. Cl.³ F16C *11/06*

U.S. Cl. 403—131 **4 Claims**

4. A ball and socket joint for elastically connecting steering linkages of motor vehicles steering devices, the joint being of the type having a thrust spring for transmitting axial forces, comprising a housing having an open end with an interior generally spherical recess, a semi-spherical bearing body in the recess having a cylindrical bore aligned with the open end, a link pin having a cylindrical shank portion extending through the cylindrical bore and having an inner end terminating in a semi-spherical head portion overlying said semi-spherical bearing body, the thrust spring embracing said pin in the cylindrical bore and elastically supporting said pin in said bearing body, and said thrust spring comprising an elastomer material wherein said bearing body includes an annular recess adjacent

one end so that said semi-spherical head portion is spaced from said one end of said bearing body, said interior generally spherical recess providing a gap between said spherical head portion and the spherical end of said recess.

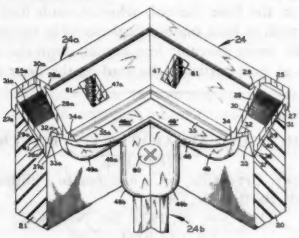


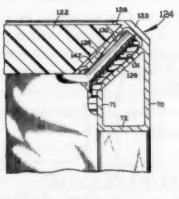
4,334,796

FURNITURE EDGE ASSEMBLY

Jim S. Latchinian, 444 Brickell Ave., Miami, Fla. 33131

Filed Oct. 30, 1980, Ser. No. 202,191
Int. Cl.³ F16D *1/00, 3/00;* F16G *11/00*
U.S. Cl. 403—217 **18 Claims**





1. An edge assembly for an article of furniture having three mutually transverse edges adjoining each other at a corner, said edge assembly comprising:

three edge pieces respectively extending along the edges of the furniture article which form said corner;

each of said edge pieces in the vicinity of said corner having a spaced pair of opposite legs extending generally parallel to each other diagonally inward from the corresponding edge of the article of furniture and separated from each other at the inside of said corner, said pair of legs defining a recess which is open at the inside of said corner;

a unitary corner piece having three obliquely disposed legs which adjoin each other at their inner ends and extend outward snugly into said recesses in said edge pieces, said corner piece at each of said legs having at least one hole therein which is open at the inner end of the respective leg;

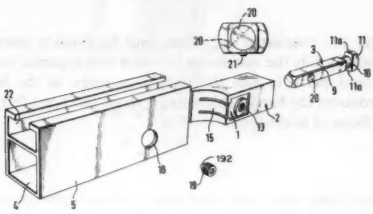
and fastener members insertable into said holes in said legs of the corner piece to force said legs of the corner piece into locking engagement with said opposite legs of the respective edge pieces.

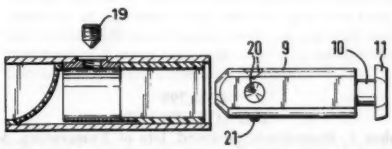
4,334,797

COUPLING ELEMENT

Bo. O. Wahlin, Hinsholmsgatans 7, S-421 77 Västra Frölunda, Sweden

Filed Apr. 17, 1980, Ser. No. 141,195
Claims priority, application Sweden, Apr. 27, 1979, 7903736
Int. Cl.³ B25G *3/00;* F16B *9/00;* F16L *41/00*
U.S. Cl. 403—252 **4 Claims**





1. A coupling system for the detachable assembly of two building elements, the first having a slot for receiving the head of a lock bolt and the second having an elongated cavity for receiving the shank of said lock bolt and a lock assembly comprising an elongated casing adapted to fit within said cavity, the inner portion thereof being provided with an insert body movable in a direction lateral to said casing and the innermost portion thereof being provided with a leaf spring engaging said insert during assembly of the system, said insert body being provided with a central axial opening for receiving said lock bolt shank and a threaded bore connecting an outerface thereof and said central opening for receiving a locking screw for said bolt and an annular projection on said outer face surrounding said threaded bore for engaging a hole provided in a face of said second building element, said leaf spring being adapted to engage during assembly first said insert body to urge the same laterally to facilitate engagement of said annular projection with the hole in said second building element to lock the same axially and later to engage the inner end of said bolt shank and urge the same outwardly in the longitudinal direction of the bolt.

4,334,798

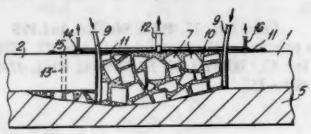
METHOD OF FILLING A HOLE IN THE GROUND

James Milne, Stonegarth, Curthwaite, Wigton, Cumbria, England

Filed Nov. 20, 1978, Ser. No. 962,132
Int. Cl.³ E01C *7/32*
U.S. Cl. 404—75 **10 Claims**

7. A method of at least partly filling a hole in the ground which comprises partly filling the hole with a plurality of separate bodies of solid material selected from the group consisting of concrete, rock, granite, stone and other manufactured and natural solid materials; partly filling interstices between the separate bodies with a multiplicity of separate small bodies of solid material; applying over the partially filled hole

a flexible fluid-impermeable covering and sealing the covering to the surface of the ground around the hole to form a substantially fluid-tight enclosure; evacuating air and any other fluid from the fluid-tight enclosure; allowing a hardenable mixture of cold setting synthetic resin in a flowable state and a filler to



enter the evacuated enclosure until hardenable mixture substantially fills the interstices between said separate bodies and at least partially fills the remaining space in the hole; and permitting the hardenable mixture to set and bond firmly to the surfaces of said separate bodies.

4,334,799

IMPACT ROLLER

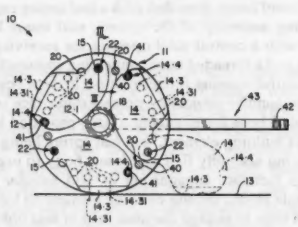
Jacobus J. Rautenbach, deceased, late of Krugersdorp, South Africa, and by Aletta C. Rautenbach, executrix, 3 Cecil Knights St., Kruggrsdorp 1740 Transvaal Province, South Africa

Filed Feb. 22, 1980, Ser. No. 123,596

Claims priority, application South Africa, Feb. 22, 1979, 79/0850

Int. Cl.³ E01C *19/28, 23/12*

U.S. Cl. 404—124 **11 Claims**



1. An impact roller for applying blows cyclically to a surface over which it is rolling, which comprises a roller assembly adapted to roll along a surface, and which includes

a roller body portion comprising a plurality of roller subunits mounted in series axial relationship on an axle, each roller subunit comprising a pair of axially spaced flanges and at least one flail member having an impact surface, the flail member being pivotally connected between the flanges at a region remote from the impact surface about an axis parallel to the roller assembly rolling axis, the sub-units being mounted to be independently rotatable relative to each other about the axis of the axle, and the flail members being adapted in use while the roller assembly is rolling, to have the impact surfaces impart cyclic downward blows to the surface along which the roller assembly is rolling.

4,334,800

TUNNEL DRIVE SHIELD

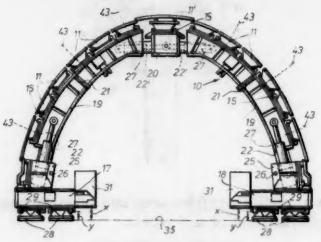
Dieter Stuckmann, Selm, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Fed. Rep. of Germany

Filed Sep. 17, 1980, Ser. No. 188,073

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1979, 2937826

Int. Cl.³ E21D *19/00*

U.S. Cl. 405—145 **26 Claims**



1. A tunnel drive shield having an arcuate support frame including a pair of foot segments and a plurality of main segments supported by the foot segments, the foot segments being engageable with the tunnel floor, and the main segments being braceable outwardly towards the tunnel walls, each foot segment being provided with at least one floor skid displaceably mounted on the base thereof, wherein each foot segment is provided with at least one vertical-movable support foot, the support feet being movable into contact with the tunnel floor to relieve, at least partially, the load on the floor skids.

4,334,801

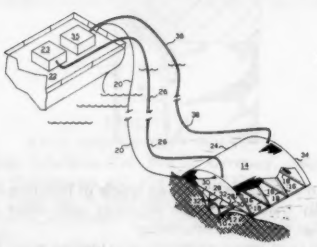
METHOD AND APPARATUS FOR COVERING A PIPELINE

Lew T. Gray, Greenville, S.C., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 29, 1979, Ser. No. 98,422

Int. Cl.³ F16L *57/00*

U.S. Cl. 405—157 **29 Claims**



1. A method for covering a pipeline, comprising:

(a) continuously depositing a fluid-solid fill mixture over said pipeline; and

(b) continuously and simultaneously removing at least a portion of said fluid from the thus deposited fluid-solid fill mixture and forming said solid fill in a predetermined contour over said pipeline.

11. Apparatus for covering a pipeline, comprising:

(a) a frame member adapted to be continuously drawn along the surface of the earth, to extend over and above said pipeline and to continuously form an in-place body of loose, fluid-solid fill into a body of solid fill, having a predetermined cross-sectional contour, over said pipeline; and

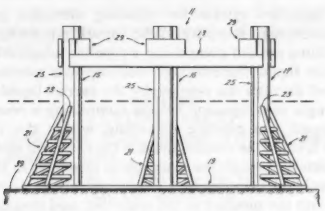
(b) an extended filter surface means mounted on said frame, covering at least a part of said frame member and adapted to continuously separate at least a portion of said fluid from said fluid-solid fill simultaneously with said formation of said body of solid fill over said pipeline.

4,334,802

SUPPORT STRUCTURE FOR OFFSHORE PLATFORMS

Edward D. Dysarz, Houston, Tex., assignor to James G. Brown & Associates, Inc.

Continuation-in-part of Ser. No. 73,308, Sep. 7, 1979, abandoned. This application Nov. 15, 1979, Ser. No. 94,360
Int. Cl.[3] E02B *17/02, 17/08*
U.S. Cl. 405—196 6 Claims



1. A rig for use in supporting and using equipment above the ocean bottom, comprising:

a body;

leg means connected to said body for supporting said body above such ocean bottom;

said leg means including elevation means for elevating said body above such ocean bottom and connection means for connecting said elevation means to said body and at least three legs, each of said legs having

a first end and a second end, said first end having means for landing the bottom of said first end on such ocean bottom, a first portion of variable cross-sectional area extending from said first end to a point intermediate said first end and said second end and a second portion of substantially constant cross-sectional area extending from said intermediate point to said second end, the cross sectional area of said first portion being greatest at said first end and decreasing moving from said first end to said intermediate point, the cross-sectional area of said second portion being no greater than the cross-sectional area of said first portion at said intermediate point.

4,334,803

MINE ROOF BOLT

Patrick C. Westlake, 415 Vernon Ave., Steubenville, Ohio 43952; Keith Fish, R.D. #1, Box 235, Chester, W. Va. 26034, and James D. Mallory, Westwood Dr., Steubenville, Ohio 43952

Filed Nov. 23, 1979, Ser. No. 96,837
Int. Cl.[3] E21D *20/00*
U.S. Cl. 405—259 3 Claims

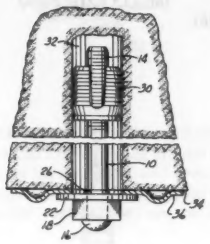
1. A mine roof bolt comprising

an elongated shaft having threads formed at least on one end thereof;

an outer stop member provided at the other end of said shaft and integrally formed with said shaft, said stop member extending laterally outwardly of said shaft;

a bolt head having an axially extending passageway provided therethrough, the inner radial dimensions of said passageway being slightly less than the outer radial dimensions of said shaft, said bolt head being force-fitted onto said shaft in abutment with said outer stop member, the force-fit between said bolt head and said shaft being such that said bolt head will disengage from said shaft and rotate with respect to said shaft when a torque of above a pre-determined magnitude is applied to said bolt head;

a generally flat washer member having outer radial dimensions greater than those of said bolt head and provided with an axial opening therethrough of generally the same size as said passageway, said washer member being force-fitted onto said shaft with the outer face thereof in abutment with said bolt head; and



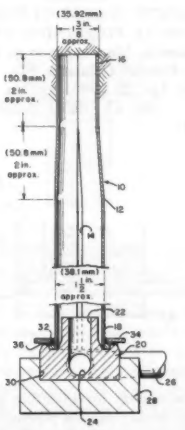
said outer stop member, said bolt head, and said washer being constructed and arranged with respect to each other such that when a force exceeding a pre-determined magnitude is applied to said bolt head and said washer in the direction of said outer stop member, said bolt head and said washer will move longitudinally of said shaft and said bolt head will creep over said outer stop member until it becomes free of the outer stop member.

4,334,804

FRICTION ROCK STABILIZER AND METHOD OF INSTALLING SAME IN AN EARTH STRUCTURE

Herman Lindeboom, Ringoes, N.J., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Apr. 7, 1980, Ser. No. 138,168
Int. Cl.[3] E21D *20/00, 21/00*
U.S. Cl. 405—259 9 Claims



1. A method of installing a friction rock stabilizer in an earth structure for stabilizing the structure, comprising the steps of:

forming a borehole in an earth structure for installation therein of a friction rock stabilizer; and

installing a friction rock stabilizer in the formed borehole; wherein

said forming and installing steps are performed simultaneously; and

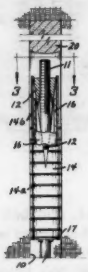
said installing step comprises compressing the stabilizer while installing the latter in the borehole.

4,334,805

ROOF BOLT AND CRADLE ARRANGEMENT

Bennie E. Morgan, Morganfield, Ky., assignor to Roof Control, Inc., Morganfield, Ky.

Filed Sep. 22, 1980, Ser. No. 189,027
Int. Cl.³ E21D 20/02
U.S. Cl. 405—261 9 Claims



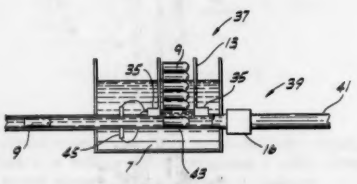
1. A mine roof bolt assembly for a bolt hole comprising a roof bolt threadedly engaging a wedge member, a plastic inner seal tube surrounding the shaft of said roof bolt, a plastic anchor tube surrounding said plastic inner seal tube, said plastic anchor tube having an upper portion flexing into anchoring engagement with the wall of said bolt hole in response to axial movement of said wedge member along said shaft of said roof bolt, and a grouting material container selectively rupturable upon rotation of said roof bolt to define a grouting material flow path between said plastic anchor tube and the inner surface of said bolt hole.

4,334,806

CAPSULE INJECTION SYSTEM FOR A HYDRAULIC CAPSULE PIPELINING SYSTEM

Henry Liu, Columbia, Mo., assignor to The Curators of the University of Missouri, Columbia, Mo.

Filed Apr. 28, 1980, Ser. No. 144,414
Int. Cl.³ B65G 51/30
U.S. Cl. 406—31 7 Claims



1. An injection system for injecting generally cylindrical capsules into a hydraulic capsule pipelining system, said pipelining system comprising a pipeline adapted for flow of a carrier liquid therethrough and capsules adapted to be transported through the pipeline by the carrier liquid flowing therethrough, said injection system comprising a reservoir of carrier liquid, the pipeline extending within the reservoir below the level of the carrier liquid in the reservoir and extending downstream out of the reservoir, and a magazine in the reservoir for holding capsules in a series, one above another, for injection into the pipeline in the reservoir, said magazine having a lower end in communication with the pipeline in the reservoir for delivery of capsules from the magazine into the pipeline, the magazine being arranged to hold the capsules with the lowermost capsule in the magazine having its longitudinal axis generally parallel to the axis of the pipeline for entry of the lowermost capsule into the pipeline lined up with the pipeline for being transported away from the lower end of the magazine by the carrier liquid, the magazine having side walls spaced apart a distance somewhat greater than the capsule diameter and upstream and downstream end walls spaced apart a distance somewhat greater than the capsule length, the downstream end wall being apertured and the side and upstream end walls being substantially free of openings therein for directing the flow of carrier liquid entering the magazine from the reservoir down along the downstream end wall to effect tilting of the lowermost capsule down toward its downstream end as it enters the pipeline.

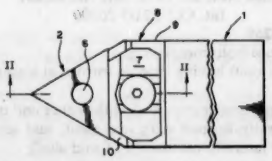
2. An injection system for injecting elongate, generally cylindrical capsules into a hydraulic capsule pipelining system, said pipelining system comprising a pipeline adapted for flow of a carrier liquid therethrough and capsules adapted to be transported through the pipeline by the carrier liquid flowing therethrough, said injection system comprising a reservoir of carrier liquid, the pipeline extending within the reservoir below the level of the carrier liquid in the reservoir and extending completely through the reservoir, a magazine in the reservoir for holding capsules in a series, one above another, for injection into the pipeline in the reservoir, said magazine having a lower end in communication with an intermediate section of the pipeline in the reservoir for delivery of capsules from the magazine into the pipeline, the magazine being arranged to hold the capsules with the lowermost capsule in the magazine having its longitudinal axis generally parallel to the axis of the pipeline for entry of the lowermost capsule into the pipeline lined up with the pipeline for being transported away from the lower end of the magazine by the carrier liquid, the magazine having side walls spaced apart a distance somewhat greater than the capsule diameter and corresponding generally to the pipeline diameter and upstream and downstream end walls spaced along the pipeline a distance somewhat greater than the capsule length, means at the lower end of the magazine for releasably holding the capsules up in the magazine, said means being operable to release the lowermost capsule to descend into the pipeline and to allow the remainder of the series to descend into position for subsequent release of the next capsule, and having means for deactivating said capsule release means in response to the presence of a capsule in the pipeline upstream from its said intermediate section.

4,334,807

TOOL HOLDER

Eliezer Nessel, Haifa, Israel, assignor to Iscar Ltd., Nahariya, Israel

Filed Sep. 4, 1980, Ser. No. 183,876
Claims priority, application Israel, Oct. 3, 1979, 58378
Int. Cl.³ B26D 1/12
U.S. Cl. 407—103 4 Claims



1. A tool holder for a cutting insert comprising, an insert receiving base member; a locating pin projecting out of the base member so as to extend through a central bore formed in the insert when the latter is located on the base member; a clamping member juxtaposed with respect to the base member

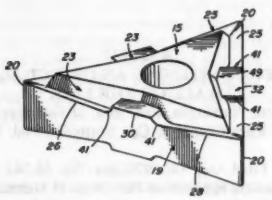
so as to be supported by a support zone of the tool holder; a first support surface of the support zone located substantially parallel to the base member; a second wedging surface of the support zone; as elongated recessed portion between the base member and the first surface and into which the wedging surface slopes towards the base member; a rearwardly disposed elongated heel portion of the clamping portion; a forwardly disposed nose portion of the clamping member; a curved abutting surface of the nose portion; an elongated tail portion formed integrally with the nose portion so as to project into the recessed portion in abutting relationship with the wedging surface; and screw biasing means located intermediate said heel portion and said nose portion for screw biasing the clamping member towards the support zone with the heel portion in sliding engagement with the first support surface, with the tail portion in abutting engagement with the wedging surface and with the curved abutting surface adapted to be in a clamping abutting engagement with an edge surface of the insert remote from a cutting portion thereof when the latter is located on the base member.

4,334,808

CUTTING INSERT

Heinz H. Seidel, Troy, Mich., assignor to GTE Products Corporation, Stamford, Conn.

Filed Jul. 7, 1980, Ser. No. 166,737
Int. Cl.³ B26D *1/00*
U.S. Cl. 407—114 **1 Claim**



1. A cutting insert comprising a polygonal body having substantially parallel surfaces and peripheral side surfaces substantially normal to said parallel surfaces joining to form corners of said polygon, at least one of said parallel surfaces having grooved recesses merging at and descending from respective corners of said polygon adjacent respective peripheral side surfaces, inner land portions extending downwardly and outwardly from a parallel surface toward side surfaces, each inner land portion comprising a pair of substantially planar face portions intersecting at a common juncture, each grooved recess including a planar outer land portion joining a respective planar face portion, said planar outer land extending inwardly and downwardly at an acute angle from a side surface to form a cutting edge therewith, each side surface having associated therewith a pair of planar outer land portions and an intermediate planar land portion, said intermediate land portion extending to said inner land portion and to said outer land portions along a plane at an angle of ninety degrees or greater to a respective side surface for terminating respective grooved recesses, said intermediate land portion being interposed said one parallel surface and the lowermost portion of said channel.

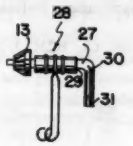
4,334,809

ARTICLE HOLDER

Jim Zavislake, Box 626, Canora, Saskatchewan, Canada

Filed Aug. 4, 1980, Ser. No. 175,032
Int. Cl.³ B23B *45/00*
U.S. Cl. 408—241 R **8 Claims**

1. A wire holder for detachably securing articles such as drill chuck keys to the flexible power cord of an electric drill or the like; comprising in combination a length of resilient wire, a partial loop formed intermediate the ends thereof having each end extending therefrom to form a leg, preformed inwardly extending notches in the wire adjacent the junction of the legs with the ends of the loop, means on the distal ends of said legs to detachably secure same to a flexible power cord or the like, a resilient sleeve engaged around the inner end of an angulated



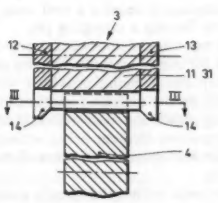
drill chuck key, said sleeve being split lengthwise through the wall thereof, said partial loop engaging around said sleeve and means extending from the surface of said sleeve to retain said wire holder thereon, said last mentioned means incuding a pair of spaced and parallel beads formed on the surface of said sleeve.

4,334,810

GEAR DEBURRING APPARATUS AND METHOD

Horst Behnke, Zorneding; Herbert Loos, Dorfen; Udo Luhmer, Munich; Manfred Heckmaier, and Rudolf Kerschl, both of Unterpfaffenhofen, all of Fed. Rep. of Germany, assignors to Carl Hurth Maschinen- und Zahnradfabrik GmbH & Co., Munich, Fed. Rep. of Germany

Filed Feb. 5, 1980, Ser. No. 118,819
Claims priority, application Fed. Rep. of Germany, Feb. 8, 1979, 2904717; Dec. 18, 1979, 2950879
Int. Cl.³ B23F *19/00*
U.S. Cl. 409—9 **10 Claims**



1. In a device for deburring or chamfering the axial edges of teeth on a workpiece, said device comprising a tool having a toothed, noncutting guide gear and at least one toothed cutting tool fixedly mounted on an axially facing side of said guide gear, the teeth on said guide gear being axially aligned with the teeth on said cutting tool, each tooth on said cutting tool having on the edges thereof adjacent said guide gear a beveled surface facing axially toward said guide gear, said beveled surface having cutting means thereon, the improvement comprising wherein the width of said guide gear is larger than the width of said workpiece which must be deburred, and means are provided for moving said guide gear and said cutting tool thereon axially to cause said cutting means on said cutting tool to engage said workpiece whereby a meshing engagement of said cutting tool with said workpiece will effect an engagement of said beveled surface and said cutting means thereon and a cutting of a beveled edge on the corresponding axially facing edge of the teeth on said workpiece.

4,334,811
SPINDLE EXTENSION, ESPECIALLY FOR DRILLING AND MILLING MACHINES

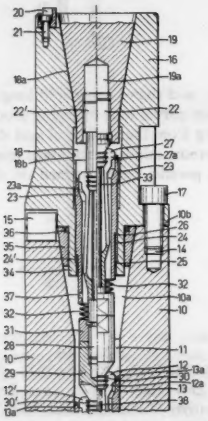
Jakob Trumpf, Buchs, and Hansueli Keller, Hegnau, both of Switzerland, assignors to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zürich, Switzerland

Filed Sep. 9, 1980, Ser. No. 185,529

Claims priority, application Switzerland, Oct. 12, 1979, 9206/79

Int. Cl.³ B23C *5/26*

U.S. Cl. 409—233 **2 Claims**



1. A spindle extension, especially for a drilling and milling machine, comprising:

a spindle provided for an automatic tool chucking device,

a chucking clamp provided for said spindle,

a spindle extension element,

said spindle being provided with an internal conical portion for receiving therein part of the spindle extension element,

said spindle extension element having an internal conical portion adapted to receive a tool cone of a tool,

said tool cone having a clamping pin,

said spindle extension element being provided with a clamping chuck for engaging said clamping pin of the tool cone,

said clamping chuck being provided with a clamping pin engageable by the chucking clamp of the spindle,

said clamping chuck together with said clamping pin of said spindle extension element being arranged to be displaceable within said spindle extension element,

spring means,

a bushing secured within the spindle extension element,

a nut member provided for the clamping pin engageable by the chucking clamp of the spindle,

said spring means bearing at one end at said bushing and at the other end at said nut member, and

said spring means striving to retain said clamping chuck in a rearward position.

4,334,812
ADJUSTABLE CONTAINER BULKHEAD ASSEMBLY

John J. Delatush, Freehold, N.J., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 3, 1979, Ser. No. 63,605

Int. Cl.³ B60P *1/64, 7/14;* B61D *45/00;* B63B *25/24*

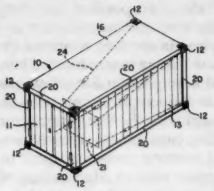
U.S. Cl. 410—52 **4 Claims**

1. A universal restraint system for positively securing a cargo comprising, in combination:

an intermodal shipping container having an exterior front panel with reinforcing members along the vertical edge thereof, said members having holes formed at the respective corners of said panel communicating between the interior and exterior of said panel;

rear bulkhead means movable along the length of the container having a bearing surface formed to engage the rearward surface of the cargo; and

a plurality of cable restraint means, each having one end



extending through respective ones of said holes and releasably secured to the exterior of said panel, and the other end connected to one of a plurality of corresponding vertically spaced positions of said bulkhead means, and operatively connected to said members for adjusting the position of said bulkhead along the length of said container for maintaining said bulkhead against the cargo.

4,334,813
DEVICE FOR FASTENING AN OBJECT AGAINST A WALL OR THE LIKE

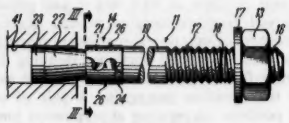
Reinhold Oettl, Nufringen, Fed. Rep. of Germany, assignor to Stumpp & Kurz GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Aug. 15, 1979, Ser. No. 66,742

Claims priority, application Fed. Rep. of Germany, Aug. 19, 1978, 2836347

Int. Cl.³ F16B *13/06*

U.S. Cl. 411—68 **19 Claims**



1. A device for fastening an object to a wall, or the like, as a plug-in mounting, comprising:

a bolt having an externally threaded portion at one end and an expander element mounting portion at the other end, the expander element mounting portion including a partially conical section, the maximum diameter of which is equal to the maximum diameter of the bolt;

a nut for threadedly engaging the threaded portion; and

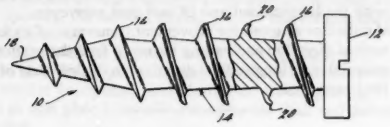
an expander element including a pair of substantially half-shell parts each having a body part with opposed longitudinal edges and opposed transverse edges, each opposed longitudinal edge having at least one end lobe and at least one central lobe formed thereon, such that each half-shell part is transversely symmetrical, and, when viewed in development, is point symmetrical, and further such that a radial form-locking connection of the half-shell parts with the expander element mounting portion of the bolt is achieved, the half-shell parts being retained near their transverse edges and restrained from relative longitudinal displacement.

4,334,814

SELF-TAPPING SCREW FOR USE IN PLASTICS

Arthur J. McKewan, Rochester, Mich., assignor to Microdot Inc., Darien, Conn.

Continuation of Ser. No. 947,822, Oct. 2, 1978, abandoned. This application Jul. 21, 1980, Ser. No. 170,552
Int. Cl.[3] F16B *39/30*
U.S. Cl. 411—311 1 Claim



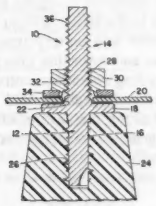
1. A threaded fastener having a rolled threadform comprising an elongated threaded shank and a torque receiving head at one end thereof, the threads of said fastener being characterized by a negative rake formed at the crest of at least some of said threads so that axial force exerted by the threads of said fastener on a workpiece in the direction of said head is in part translated inwardly toward the axis of said fastener, the crest of said negatively raked threads extending axially toward the head of said fastener an amount sufficient to intercept a radial plane drawn through the juncture of the negatively raked flank and the root of said thread, the root of said threads being of truncated conical configuration tapering radially inwardly toward said head so as to create a slight wedge angle in said shank between adjacent threads whereby an axial force exerted by a rolling die on the crest of said threads in the direction of the head of said fastener to create said negative rake is countered by an axial force exerted by said rolling die on the root of the threadform of said fastener in a direction away from the head of said fastener.

4,334,815

FASTENER WITH A MODIFIED THREAD FORM

Rudolph E. Knohl, Bartlett, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Jun. 23, 1980, Ser. No. 161,962
Int. Cl.[3] F16B *25/00*
U.S. Cl. 411—368 5 Claims



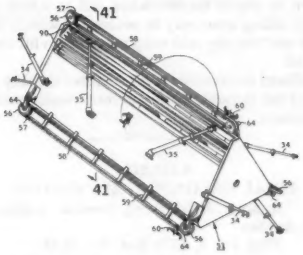
1. In combination a double-ended stud having a first thread configuration on one end for tapping into relatively soft material and a second cylindrical thread configuration on the other end, an internally threaded nut cooperatively adapted to engage said second thread configuration in order to secure said soft material to a base member, said two thread configurations being separated by a laterally extending flange, said second thread configuration having a first series of thread convolutions of a predetermined axial extent and which mate with and have normal full engagement with, the internal thread of said nut, said nut having a washer associated therewith, said first series of thread convolutions predetermined axial extent being defined by a distance extending axially along said second stud end to a point which is spaced from said flange a distance which is not greater than the sum of the height of the nut plus the thickness of said washer plus the thickness of said base member, a second series of thread convolutions in excess of one thread turn in said second thread configuration and positioned along said second stud end at an axial location which is farther from said flange than said first series of thread convolutions, said second series of convolutions having a thread diameter which is less than that of said first convolutions but of a diameter which will still provide partial engagement with the internal thread of the nut whereby, when the nut is removed from the second stud end, the reduced diameter of said second series of convolutions will provide substantially circumferentially continuous clearance for paint particles and the like, so as to avoid loosening of said first stud end in said comparatively soft material.

4,334,816

DEVICE AND METHOD FOR ASSEMBLING LARGE SPACE STRUCTURES

Paul Slysh, San Diego, Calif., assignor to General Dynamics Corporation, San Diego, Calif.

Filed Aug. 3, 1978, Ser. No. 930,823
Int. Cl.[3] B64G *4/00*
U.S. Cl. 414—10 19 Claims



1. An assembler trolley for the construction of a structure comprising:
a forward crawler;
a rear crawler;
a crawler coupler, said coupler telescopically connected between said forward crawler and said rear crawler;
a plurality of transport belts mounted on each of said crawlers;
gripping means mounted on said transport belts for gripping said structure; and
manipulator arms disposed on at least one of said crawlers for maneuvering elements of said structure.

4,334,817

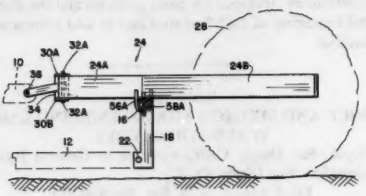
BACK LOADER FOR BIG HAY BALES

Julius D. Vansickle, and Major J. Vansickle, both of Rte. 3, Boswell, Okla. 74727

Continuation of Ser. No. 961,134, Nov. 16, 1978, abandoned. This application Dec. 11, 1980, Ser. No. 215,561
Int. Cl.[3] A01D *87/12*
U.S. Cl. 414—24.5 1 Claim

1. Apparatus for use with a tractor for lifting and transporting objects such as large cylindrical hay bales, the tractor having a three-point hitch including a stationary pivot point and a pair of opposed, generally paralleled lifting arms below the pivot point, the lifting arms being simultaneously pivotal in paralleled vertical planes by hydraulic action, the apparatus comprising:
(1) a horizontal lifting bar;
(2) means of supporting said horizontal lifting bar to the lifting arms of a tractor, the lifting bar being thereby vertically positionable by the tractor arms;

(3) a short horizontal member having the inner end pivotally attached to the tractor pivot point;
(4) a first wing member having an inner portion and an outer portion;
(5) a second wing member having an inner portion and an outer portion, the inner end of each wing member being pivotally attached to said horizontal member whereby the wing members are free to pivot towards and away from each other, the wing members slidably resting on said lifting bar intermediate their ends;



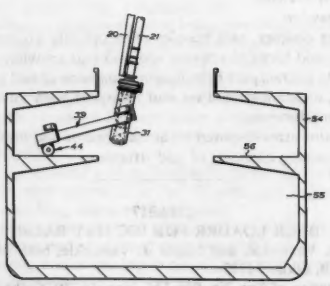
(6) a hydraulic grasping cylinder-piston pivotally connected at opposite ends to the wing members wherein the outer ends of the wing members may be spaced apart from each other to receive an object therebetween and in which condition the tractor lifting arms may be pivoted upwardly to lift said lifting bar and thereby said wing members to lift the grasped object; and
(7) means affixed to each said wing member slidably receiving said lifting bar through the full pivotal displacement of said wing members.

4,334,818

FINAL UNLOADING APPARATUS

Karl A. L. Tingskog, Helsingborg, Sweden, assignor to AB Siwertell, Sweden

Filed Jul. 6, 1979, Ser. No. 55,651
Claims priority, application Sweden, Jul. 11, 1978, 7807715
Int. Cl.³ B65G *63/00, 67/00*
U.S. Cl. 414—139 **6 Claims**



1. A final unloading apparatus connectable to the lower inlet end portion of a vertical conveyor (21) which is disposed to carry off particulate material (52) in an upward direction from a base (51) and whose inlet end portion is vertically and laterally movable, comprising

a sleeve (31) arranged to be mounted about the inlet end portion of the vertical conveyor (21),

an elongate feed conveyor (39) pivotally connected at its discharge end to said sleeve, connecting said elongate feed conveyor to the interior of said sleeve,

a first pivotal means connecting said discharge end of said elongate feed conveyor to said sleeve to allow pivoting of said elongate feed conveyor in a plane approximately parallel to the longitudinal axis of said sleeve about an axis approximately perpendicular to the longitudinal axis of said sleeve,

an elongate collector (44) disposed transversely of the longitudinal direction of said elongate feed conveyor and pivotally journalled on said feed conveyor,

a second pivotal means connecting said elongate collector to said feed conveyor to allow pivoting of said elongate collector in a plane transverse to the longitudinal axis of said feed conveyor and about an axis substantially coaxial with the longitudinal axis of said feed conveyor,

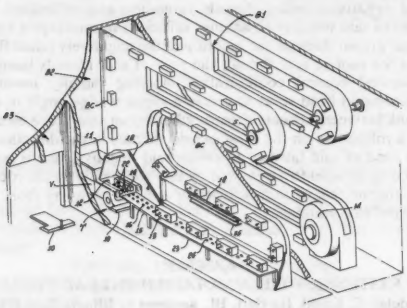
said collector adapted for movement transverse of its longitudinal direction and having means to feed the particulate material in its longitudinal direction to the inlet end of said feed conveyor.

4,334,819

BATTERY CHARGING SYSTEM

Julius G. Hammerslag, 27011 Calle Esperanza, San Juan Capistrano, Calif. 92675

Filed Mar. 27, 1980, Ser. No. 134,648
Int. Cl.³ B65G *67/02*
U.S. Cl. 414—395 **6 Claims**



1. A battery charging system for electric vehicles comprising: a battery transfer station for receiving a vehicle; means operable at said transfer station to remove a spent battery from the vehicle and for installing a charged battery in said vehicle, means providing a plurality of charging stations; in a continuous path from and to said transfer station and means for moving spent batteries from said battery transfer station through said charging stations and returning charged batteries to said transfer stations; including an endless conveyor connectable to said batteries, and extending along said path, said charging stations being spaced along the path of said endless conveyor, said conveyor having means to engage and transport the batteries through said path.

4,334,820

BUCKET SYSTEM PROVIDED WITH TILTING MEANS APPLICABLE TO FORK LIFT

Kanematsu Homura, 30-1 Yagi 1 chome, Kanazawa-shi, Ishikawa-ken, Japan

Filed Jul. 18, 1979, Ser. No. 58,465
Claims priority, application Japan, Aug. 17, 1978, 53-111972[U]; Oct. 5, 1978, 53-122806
Int. Cl.³ B65G *67/00;* B65B *21/02*
U.S. Cl. 414—607 **8 Claims**

1. A bucket system adapted to be attached to a fork lift having a stationary mast and a mast movable therealong for elevation and formed integrally with a two-pronged platform, which system comprises

(a) a bucket-supporting frame composed of a pair of sheath-like horizontal arms having leading ends and rear ends capable of receiving the two-pronged platform, a pair of

unitary and rigid stanchions extending vertically from the horizontal arms, each stanchion having a lower end fixedly connected to a respective one of the horizontal arms near the rear end thereof and a leading end opposite the lower end arcuately bent forwardly away from the rear end, and beams serving to brace the horizontal arms and stanchions for maintaining them at a fixed distance;

(b) at least one pair of pulleys mounted on the leading ends of the stanchions;

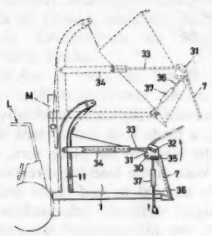
(c) a bucket having a bottom, a rear side and defining a front opening, the bottom having a front end remote from the stanchions;

(d) a front cover disposed in the front opening;

(e) a shaft freely pivotally suspending the front cover on the bucket for opening and closing the front opening;

(f) an arm plate integrally joined to the shaft and defining a slot;

(g) a pivoting control means for the front cover,



(1) one end of the control means being slidably set in the slot of the arm plate and another end thereof being fastened to a respective one of the stanchions whereby the pivoting of the front cover on forward tilting of the bucket is controlled to allow the front opening of the bucket to be opened widely;

(h) means rotatably attaching the front bottom end of the bucket to the leading ends of the horizontal arms;

(i) a pair of cables connected at one end thereof to the rear side of the bucket near the bottom thereof, trained over the pulleys and having another end thereof fastened to the stationary mast of the fork lift whereby elevation of the two-pronged platform stretches the cables until they pull up the rear side of the bucket near the bottom thereof and tilt the bucket forwardly about the means rotatably attaching the front bottom end of the bucket to the leading ends of the horizontal arms.

4,334,821

REGENERATIVE ROTODYNAMIC MACHINES

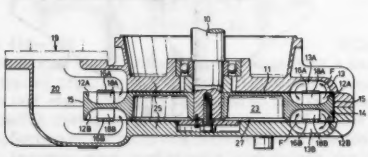
Herbert Sixsmith, Oxford; Keith Thurlow, Nr. Ipswich; Geoffrey K. Soar, Ipswich, and James W. Burton, Ipswich, all of England, assignors to Compair Industrial Ltd., Ipswich, England

Filed Nov. 28, 1979, Ser. No. 97,956

Claims priority, application United Kingdom, Nov. 28, 1978, 46419/78

Int. Cl.³ F04B *5/00*

U.S. Cl. 415—53 T **7 Claims**



1. A regenerative rotodynamic machine comprising a casing, a rotor mounted to rotate within the casing and having at least one ring of blades thereon concentric with the axis of rotation, said blades rotating in an annular chamber in the casing that is likewise concentric with the axis of rotation, the annular chamber having a dimension in the radial direction greater than the radial extent of the blades and providing a channel alongside the blades in which fluid passing through the blades can recirculate, and wherein the blades are curved and profiled aerodynamic blades each having a concave inner surface which leads in the direction of rotation of the blades, and a convex outer surface which trails in the direction of rotation, the curvatures being chosen such that in operation the angle $(\beta_1+\beta_2)$ between the entry and exit flows of each aerodynamic blade, in the plane containing the curvature of the blade, is greater than 90°.

4,334,822

CIRCUMFERENTIAL GAP SEAL FOR AXIAL-FLOW MACHINES

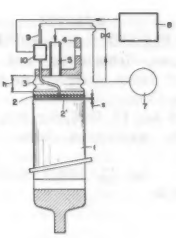
Axel Rossmann, Karlsfeld, Fed. Rep. of Germany, assignor to MTU Motoren- und Turbinen-Union Munchen GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 4, 1980, Ser. No. 156,499

Claims priority, application Fed. Rep. of Germany, Jun. 6, 1979, 2922835

Int. Cl.³ F01D *11/00*

U.S. Cl. 415—113 **4 Claims**



1. Circumferential gap seal for axial-flow machines, comprising a flow machine casing; a metallic retaining flange fastened to said casing; a metallic ring; an abradable contact lining provided on said ring; flexible side walls, said metallic ring being connected to said retaining flange through said flexible side walls, said metallic ring forming a circumferential gap with the tips of rotor blades of said machines, said flexible side walls, said metallic ring and said retaining flange being subdivided into a plurality of segments in the circumferential direction thereof; a radially directed gap being formed intermediate each said segment; flexible radial walls sealing said radial gaps over the radial height of said side walls; and sensor means arranged on said metallic ring for varying the radial height as a function of the size of said circumferential gap measured by said sensor means.

4,334,823

WIND OR FLUID CURRENT TURBINE

Peter A. Sharp, 520 Utah St., San Francisco, Calif. 94110

Filed Dec. 16, 1980, Ser. No. 217,154

Int. Cl.³ F03D *3/06*

U.S. Cl. 416—119 **27 Claims**

1. A turbine responsive to a moving fluid comprising:

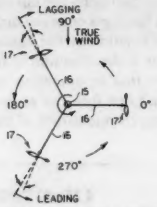
(a) a rotatable central shaft,

(b) supporting means operably mounted on said central shaft and having a free end extending in a radial direction from said central shaft,

(c) a blade assembly pivotally supported on said free end of said supporting means whereby interaction between a

moving fluid and said blade assembly causes rotation of said central shaft,

(d) said blade assembly comprising at least one rocking arm means pivoted on said supporting means, a blade member attached to said rocking arm means, at least one counter-



weight arm attached to said blade, and a counterweight fixed to said counterweight arm

(e) said attachment of said rocking arm means on said supporting means being articulated in response to said interaction between said moving fluid and said blade.

4,334,824

FLEXIBLE FAN DEVICE

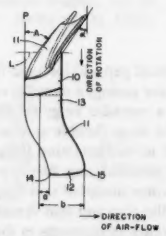
Shunzo Tsuchikawa, Ichinomiya, and Masaharu Hayashi, Toyota, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jul. 17, 1980, Ser. No. 169,667

Claims priority, application Japan, Jul. 27, 1979, 54-104465[U]

Int. Cl.³ F04D *29/38*

U.S. Cl. 416—132 R **2 Claims**



1. A flexible fan device comprising: a power-driven rotating boss having an axis of rotation and a plurality of flexible blades extending radially outward therefrom, each of said blades having a root portion and a tip portion, the root portion gradually curving away in the downstream direction from a plane perpendicular to said axis of rotation to form an attachment angle of said root portion to said boss, wherein said tip portion is axially offset from said root portion toward the downstream side, the trailing edge of said tip portion is axially offset farther than the leading edge of the tip portion, and both the leading edge and the trailing edge of said tip portion lie on the downstream side of a plane through the center of said root portion and perpendicular to said axis of rotation, the cross-section of said blade thereby forming an S curve, whereby each blade is flexibly twisted under a centrifugal force so that the tip portion of each blade makes a variable angle with respect to the plane perpendicular to the axis of rotation of the boss means, said variable angle decreasing in response to an increase in speed of rotation of the boss means.

4,334,825

ELASTOMERIC DAMPING DEVICE ESPECIALLY FOR THE NECK OF HELICOPTER WING BLADES

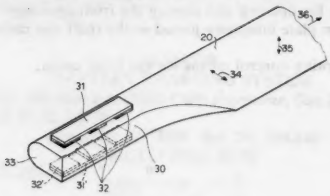
Dieter Braun, Oberpframmern; Wolfgang Buchs, Valley, and Andreas Kirchner, Oedenstockach, all of Fed. Rep. of Germany, assignors to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed Jan. 29, 1981, Ser. No. 229,538

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1980, 3004451

Int. Cl.³ B64C *27/38*

U.S. Cl. 416—134 A **3 Claims**



1. In a hingeless rotor wing blade, especially for helicopters, including a blade, a blade root and a blade neck operatively interconnecting the blade to the blade root, said blade neck being flexible at least in the lead-lag direction, and damping means operatively secured to said blade neck in the region subject to the largest dynamic deformations resulting from blade movements, the improvement wherein said damping means comprise at least two longitudinal plates which are stiff against bending in the direction in which a damping force is to be effective, and intermediate connecting members made of a visco-elastic material having a high damping capacity operatively connecting the respective plate to said blade neck at the suction side and at the pressure side of the blade neck so that said plates extend in parallel to the longitudinal blade axis, said intermediate connecting members being spaced from each other in the direction of the longitudinal blade axis and forming the sole connecting means between the plates and the blade neck.

4,334,826

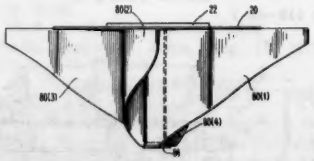
SURFACE AERATOR IMPELLER

John R. Connolly, 107 Orchard Rd., Paoli, Pa. 19301; David E. Gibson, Washington Park Apts., D-3, Ft. Washington, Pa. 19034; Edward L. Heimark, 649 S. Henderson Rd., Apt. C-206, King of Prussia, Pa. 19406; Jerome B. Quinn, R.D. #2, Kennett Square, Pa. 19348; Richard E. Speechley, 3625 W. Moreland Rd., Apt. E-1, Willow Grove, Pa. 19090, and Richard L. Winter, 500 Wyncotte Cir., Berwyn, Pa. 19312

Division of Ser. No. 28,486, Apr. 9, 1979, which is a division of Ser. No. 825,486, Aug. 17, 1977, Pat. No. 4,163,631. This application Feb. 4, 1980, Ser. No. 118,109

Int. Cl.³ B01F *3/04*

U.S. Cl. 416—185 **3 Claims**



1. A surface aerator impeller for aeration of liquids said impeller comprising;

(a) a large flat horizontal upper disc;

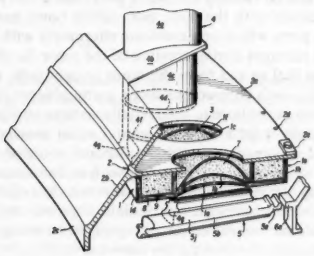
(b) means adapted for securing said disc to the lower end of a vertical rotatable drive shaft for rotation therewith about the center axis of said disc;
(c) a plurality of vertical impeller blades secured to the underside of said disc at uniformly angular spacings about the center axis of said disc;
(d) each blade having a major area surface having a reverse curve, as viewed vertically, an inward portion being curved in a retreating direction and an outward portion being curved in an advancing direction relative to the direction of rotation of said disc;
(e) each blade having an inner vertical edge of said major area surface located off and forward of the center axis of said disc.

4,334,827

DEVICE FOR ATTACHING BLADES TO A COMPRESSOR ROTOR FOR A TURBOJET

Jean G. Bouiller, Brunoy, and Raymond J. M. Joubert, Savigny sur Orge, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "SNECMA", Paris, France

Filed Apr. 3, 1980, Ser. No. 137,010
Claims priority, application France, Apr. 4, 1979, 79 08487
Int. Cl.³ F01D 5/30
U.S. Cl. 416—220 R **8 Claims**



1. An apparatus for attaching blades to a compressor rotor for a turbojet comprising:
a rotor drum in which are formed holes having walls extending radially and within which said blades are inserted, said blades forming successive platforms by means of which said blades receive support from said walls of said holes; and
a cotter pin inserted between foot portions of two adjacent blades wherein said blades are locked in place radially on said drum by means of said cotter pin and draw support from an interior surface portion of said drum.

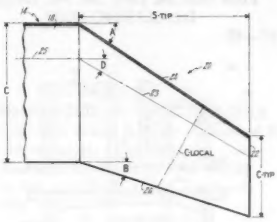
4,334,828

HELICOPTER BLADE WITH A TIP HAVING A SELECTED COMBINATION OF SWEEP, TAPER AND ANHEDRAL TO IMPROVE HOVER EFFICIENCY

Robert C. Moffitt, Seymour, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jan. 21, 1980, Ser. No. 114,137
Int. Cl.³ F01D 5/12
U.S. Cl. 416—228 **9 Claims**

1. A helicopter blade having moderate blade twist, a leading edge, a trailing edge, a root, a tip, a chord dimension extending between said edges, and being fabricated so that aerodynamic blade loading during rotor hover operation will induce torsional deflection of the blade to a preferred pitch position and thereby improve rotor performance and reduce the total power required to drive the rotor and including:
a root section adapted to be connected to a helicopter rotor hub for rotation therewith about an axis of rotation,
a central portion of selected aerodynamic shape connected to and extending outwardly from the blade root portion,
a tip portion connected to and extending outwardly from the blade central portion to establish a blade radius between the axis of rotation and the blade tip, said blade tip portion being selectively shaped to improve helicopter hover performance by diminishing the intensity of the tip vortex generated during hover operation and directing the tip vortex away from the following blade to minimize interference therewith,
said tip portion extending for approximately 8%±2% of blade radius for blades to be used in rotors of four or more blades, and 13%±2% for blades to be used in two bladed rotors,



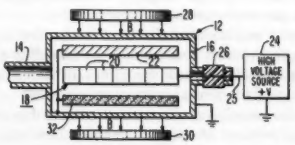
said tip portion being swept rearwardly to reduce the velocity of the air in the perpendicular to tip local quarter chord line to thereby reduce blade tip loading and the strength of the tip vortex generated in hover,
said tip portion leading edge being swept rearwardly approximately an angle of twice the magnitude of the rearward sweep of the tip portion trailing edge,
said tip portion also being tapered so that the chord dimension at its outboard end is approximately ⅓ the chord dimension at its inboard end to reduce tip portion area and to thereby further reduce blade tip loading and the strength of the tip vortex generated in hover, and
said tip portion also being deflected downwardly throughout a portion of the blade tip equal to at least one blade chord dimension so as to direct the tip vortex away from the following blade in hover.

4,334,829

SPUTTER-ION PUMP FOR USE WITH ELECTRON TUBES HAVING THORIATED TUNGSTEN CATHODES

Willis E. Harbaugh, Leola, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 15, 1980, Ser. No. 121,877
Int. Cl.³ F04B 37/02
U.S. Cl. 417—49 **24 Claims**



1. In a sputter-ion pump for use in combination with an electron tube having at least one thoriated tungsten cathode, said sputter-ion pump comprising a vacuum envelope permanently in communication with the interior of said tube, a getter-cathode within said envelope, an anode structure, means for establishing an electric field between said anode structure and said cathode and means for establishing a magnetic field substantially parallel to said electric field, the improvement wherein said getter cathode comprises:
a cathode member including a mixture of at least one reac-

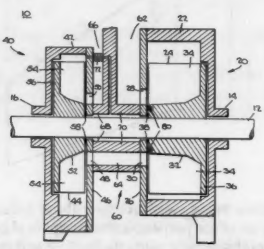
tive material and carbon for forming, in situ, a tungsten carbide layer on the thoriated tungsten cathode of said electron tube so as to increase the life of said electron tube.

4,334,830

TWO-STAGE LIQUID RING PUMP WITH IMPROVED INTRASTAGE AND INTERSTAGE SEALING MEANS

Harold K. Haavik, South Norwalk, Conn., assignor to The Nash Engineering Company, Norwalk, Conn.

Filed Mar. 24, 1980, Ser. No. 133,628
Int. Cl.³ F04C *19/00*
U.S. Cl. 417—68 **9 Claims**



1. In a two-stage liquid ring pump of the center head type, the pump including (1) first and second stages each having (a) a cylindrical housing, (b) a rotor eccentrically mounted for rotation in the housing, and (c) a port plate on the end of the housing adjacent the other stage, each port plate having an intake port and a discharge port, the first stage discharge port being connected to the second stage intake port, both of the rotors being mounted on a common shaft which extends through both of the port plates, the portion of the shaft intermediate the port plates passing through and being enclosed by an interstage housing structure which extends between the port plates, each rotor including an annular hub and a plurality of radially extending circumferentially spaced blades, (2) a first annular clearance extending radially outward from the shaft between the first stage port plate and the adjacent end of the first stage rotor hub and communicating with the interior of the interstage housing structure adjacent the shaft, and (3) a second annular clearance extending radially outward from the shaft between the second stage port plate and the adjacent end of the second stage rotor hub and communicating with the interior of the interstage housing structure adjacent the shaft, improved gas sealing means comprising:

an annular seal member disposed in the first annular clearance, the annular seal member surrounding the shaft and being radially spaced therefrom to define an enclosed portion of the first annular clearance; and

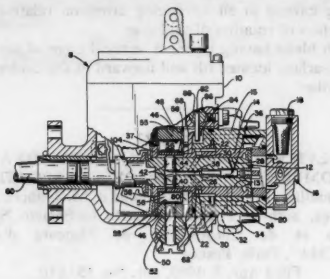
means for supplying pressurized sealing liquid to the enclosed portion of the first annular clearance to substantially fill the enclosed portion with pressurized sealing liquid, the pressure of the sealing liquid being at least equal to the final discharge pressure of the pump, the annular seal member and the pressurized sealing liquid in the enclosed portion cooperating to substantially prevent gas leakage through the enclosed portion from the high pressure side of the first stage to the low pressure side of the first stage, and also substantially preventing gas leakage from the second stage to the first stage via the second annular clearance, the interior of the interstage housing structure, and the first annular clearance.

4,334,831

ROTARY FUEL INJECTION PUMP

Leonard N. Baxter, Windsor, Conn., assignor to Stanadyne, Inc., Windsor, Conn.

Filed Mar. 5, 1980, Ser. No. 127,322
Int. Cl.³ F04B *1/10, 19/02*
U.S. Cl. 417—214 **9 Claims**



1. In a rotary fuel injection pump for an internal combustion engine having a housing with inlet and outlet passages; a rotor journaled in the housing having a rotor body with a plurality of angularly spaced radially extending bores and a fuel passage in communication with the inner ends of the bores having inlet and outlet ports which communicate alternately with said inlet and outlet passages during rotation of the rotor for alternately conducting fuel to and from the bores respectively, a plunger assembly for each bore comprising a pump plunger reciprocably mounted in the bore to sequentially receive charges of fuel from and deliver them to said inlet and outlet passages respectively, and a plunger operating roller and roller shoe at the outer end of the plunger; a cam ring with an inner cam contour surrounding the rotor in the plane of revolution of the rollers and engageable therewith to translate the cam contour into reciprocable movement of the plungers; and a plunger stroke limit mechanism for limiting the outward stroke of the plungers and thereby regulate the quantity of fuel injected during each inward pumping stroke thereof; the improvement wherein the plunger stroke limit mechanism comprises a separate abutment slide for each plunger assembly reciprocably mounted on the rotor for axial adjustment adjacent and relative to the respective plunger assembly and having first abutment means for limiting the outward stroke of the plunger assembly radially adjustable relative to the respective plunger assembly upon axial adjustment of the abutment slide, each plunger assembly having second abutment means engageable with the first abutment means of the respective abutment slide to adjustably limit the outward stroke of the respective plunger in relationship to said relative radial adjustment of the first abutment means and therefore the adjusted axial position of the respective abutment slide, and control means connected to axially adjust the abutment slides equally.

4,334,832

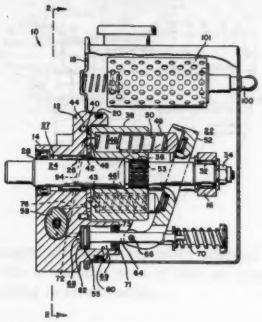
CONSTANT OUTPUT FLUID PUMP

Arthur K. Brown; Richard T. Hendrickson, and Jerome T. Ewald, all of South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Mar. 6, 1980, Ser. No. 127,680
Int. Cl.³ F04B *1/26*
U.S. Cl. 417—218 **1 Claim**

1. In a pump, a reservoir, an outlet, and variable displacement pumping means for pumping fluid from said reservoir to said outlet via a flow path, said variable displacement pumping means pumping a varying quantity of fluid as a function of the displacement of said pumping means, fluid pressure responsive means for controlling the displacement of said pumping means

as a function of a pressure level communicated to said fluid pressure responsive means, differential pressure responsive valve means controlling communication between said pumping means and said fluid pressure responsive means and between said fluid pressure responsive means and said reservoir whereby said pressure level is controlled as a function of the differential pressure across the valve means, and means for creating a pressure differential across said valve means as a function of the volume of fluid pumped through said flow path by said pumping means, said valve means including a housing defining a bore therewithin and a valve member slidably mounted in said bore and cooperating with the latter to define a pair of pressure chambers, one of said chambers being communicated with the pumping means, said valve means also



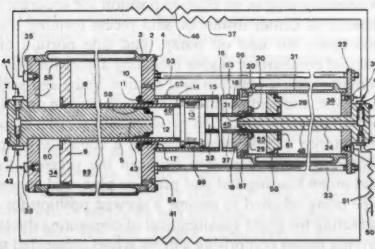
including passage means distinct from said flow path for communicating said one chamber with the other chamber, said pressure differential being defined by the differential between a fluid pressure in said one chamber and a fluid pressure in said other chamber, said pressure differential creating means includes means defining a flow restricting orifice in said flow path having high and low pressure sides, said high pressure side communicating with said pumping means, said low pressure side communicating with said outlet, and said valve member further comprises a body portion and a neck portion extending from said body portion, said neck portion and a portion of the bore wall surrounding said neck portion defining an annular space therebetween, said annular space comprising said flow-restricting orifice.

4,334,833

FOUR-STAGE GAS COMPRESSOR

Antonio Gozzi, Via Giordano, 14, Montale Castelnuovo Rangone, Modena, Italy

Filed Oct. 28, 1980, Ser. No. 202,356
Int. Cl.³ F04B *25/04, 23/10, 19/02*
U.S. Cl. 417—258 **2 Claims**



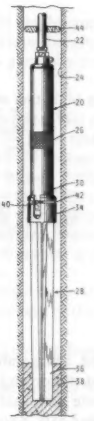
1. A four-stage compressor including: a double-acting piston operable by pressurized oil and provided with first and second hollow opposed piston rods the first of which is connected to a first-stage piston and the second of which is connected to a second-stage piston; said first- and second-stage pistons being arranged to slide in first and second jackets respectively and being a sliding fit upon first and second cylindrical bodies respectively; said first and second cylindrical bodies respectively being fixed to first and second opposed heads; a first axial suction and delivery duct leading to an end face of said first cylindrical body, a third stage chamber being defined between said end face and one face of the double-acting piston; and a second axial suction and delivery duct leading to an end face of said second cylindrical body, a fourth stage chamber being defined between said end face of said second cylindrical body and the other face of the double-acting piston.

4,334,834

SUBMERSIBLE PUMP STABILIZER

Werner R. Werner, and Bruno R. Werner, both of 309 Schoolhouse Rd., Old Saybrook, Conn. 06475

Filed Sep. 28, 1979, Ser. No. 79,790
Int. Cl.³ F04B *35/04, 17/00*
U.S. Cl. 417—360 **1 Claim**



1. A stabilizer for positioning a pump vertically and for resisting torsional forces in a well bore having sandy penetrable material at its bottom, comprising a rigid structure having a first end and a second end along an axis; the first end having means to receive and non-rotatably engage the body of the pump and to receive axial and lateral force therefrom; and, the second end having means for contacting and frictionally engaging the bottom of the well, to resist vertical, rotational, and lateral motion; the structure being of an axial length sufficient to support the pump above entrainable debris, characterized by a first end shaped to provide a cylindrical cavity in proximity to the body where it is engaged by the first end; passages connecting the cavity with the liquid being pumped, to allow circulation within the cavity of liquid for cooling the pump body; the structure further having a taper extending substantially along the length of the structure, the cross section of the taper increasing from the second end to the first, thereby enabling the stabilizer to first easily penetrate material at the bottom of a well bore, to provide engagement therewith for resisting rotational motion, the cross section providing increasing resistance with further penetration, thereby providing engagement for resisting vertical motion.

4,334,835

ENCAPSULATED REFRIGERATOR

Jan Dyhr, Sonderborg, and Ole J. Nissen, Augustenborg, both of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

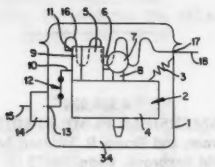
Division of Ser. No. 22,985, Mar. 22, 1979, Pat. No. 4,242,056, which is a division of Ser. No. 849,308, Nov. 7, 1977, Pat. No. 4,160,625. This application Apr. 7, 1980, Ser. No. 138,162

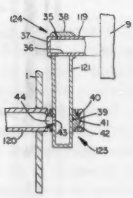
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1976, 2650937

Int. Cl.[3] F04B *39/12*

U.S. Cl. 417—363

1 Claim





1. An encapsulated refrigerator assembly, comprising a capsule, an integrated motor and compressor unit resiliently mounted in said capsule with said motor unit having a generally vertically extending axis, a compressor inlet port, an inlet port in said capsule in circumferential alignment with said compressor inlet port but axially and radially offset therefrom relative to said motor axis, pipe fittings for said ports having free ends in axially offset relation to each other, a connecting pipe between said fittings, upper and lower articulated joint means between said pipe and said fittings, one of said articulated joint means being a universal joint, said universal joint including a sleeve element having a spherical outer surface, the associated one of said pipe fittings and said connecting pipe being a pair of relatively movable members, said sleeve element being journalled on one of said members and journalled in the other of said members, said sleeve element and one of said members having aligned holes to provide fluid communication between said members, both of said articulated joint means having engaging journal and bearing sections with each said journal section having a hole which provides fluid communication between the interiors of said journal and bearing sections, and the other of said articulated joint means forming a sliding joint to allow relative movement between said pipe and said other articulated joint means to compensate for axial variations in the spacing of said fittings and to allow relative axial vibrational movement between said compression unit and said capsule.

4,334,836

OIL PUMP ARRANGEMENT

Heribert Kubis, and Karl Schott, both of Nuremberg, Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nuremberg, Fed. Rep. of Germany

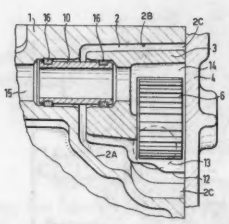
Filed Aug. 15, 1979, Ser. No. 66,627

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1978, 2836094

Int. Cl.[3] F04B *17/00;* F04C *2/08;* F02B *77/14*

U.S. Cl. 417—364

2 Claims



1. An oil pump arrangement for the pressure oil supply for internal combustion engines, which comprises in combination:

an internal combustion engine, one side of a portion of which is provided with a rough-cast unmachined recess therewith;

a pump housing having an outlet and a center arranged in said recess;

impeller gears which are provided in said pump housing and which mesh with one another;

driving means operatively connected to said internal combustion engine for driving at least one of said impeller gears, said pump housing being open toward that part of said side portion which faces said driving means;

closure means to which said pump housing is connected for closing off the open side of said pump housing and said recess and for providing support for said driving means;

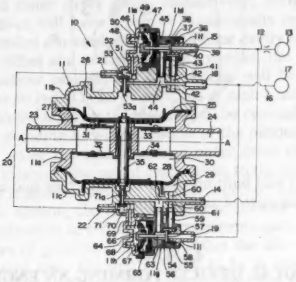
a suction pipe connected to and communicating with said pump housing; and

a pressure pipe connected to and communicating with said pump housing as well as having a center so that slight variations in the centers between the pump housing outlet and said pressure pipe can be compensated by having the connecting pipe in an oblique position for accurate maintenance of center distances, said recess forming the suction space for said oil pump, said side portion of said internal combustion engine including a bore for providing communication between said suction space and said suction pipe, and said pump housing including an opening for providing communication between said suction space and the interior of said pump housing, a connecting pipe for providing communication between the pressure side of said pump housing and said pressure pipe, said connecting pipe being adapted to assume a skewed position for compensating for slight misalignment of connecting ducts, said driving means comprising a drive wheel connected to one of said impeller gears and said closure means comprising a timing gear case, and further including an idler gear supported by said timing gear case and serving to drive a fuel injection pump or the ignition distributor and the camshaft, said drive wheel meshing with said idler gear.

4,334,837
DIAPHRAGM AIR PUMP ASSEMBLY

Masami Inada, Kariya; Yasuhiro Kawabata, Anjo, and Noriyoshi Shibata, Nagoya, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jan. 17, 1980, Ser. No. 113,238
Claims priority, application Japan, Jan. 19, 1979, 54/5225
Int. Cl.[3] F04B *43/06;* F01L *25/02*
U.S. Cl. 417—393 8 Claims



1. A diaphragm air pump assembly adapted for use and association with a vacuum source and an atmospheric air source, comprising in combination:

a body,

axially aligned inlet and outlet ports in said body and defining a central axis of said body,

first and second diaphragms for defining first and second pump chambers and first and second vacuum operational chambers in said body,

a rod interconnecting said first and second diaphragms to move in unison therewith, said diaphragms and said rod moving transversely of said central axis,

first and second valve means mounted on said body, each said valve means including a port connected to said vacuum source, a port connected to said atmospheric air pressure, and a passage allowing alternative admission of vacuum and atmospheric air to said first and second vacuum operational chambers by communicating one of said ports with said passage, each of said valve means being disposed in symmetrical arrangement with respect to the central axis of said body,

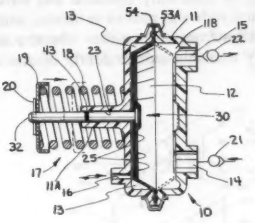
first and second actuating means symmetrically mounted on said body with respect to said central axis, each of said actuating means including a variable pressure chamber, an atmospheric pressure chamber in normal communication with atmospheric air, and a reciprocal member operatively connected to each of said first and second valve means in accordance with pressure differential between said variable pressure chamber and said atmospheric pressure chamber, thereby admitting a vacuum alternatively to said first and second vacuum operational chambers, and

passage means connected at one end to said vacuum source and at the other end to said atmospheric air source, said passage means including first and second normally closed valves mounted on said body to control alternative admission of vacuum and atmospheric air into said variable pressure chambers, said first and second normally closed valves being symmetrically disposed with respect to the central axis of said body and actuated in response to movement of said first and second diaphragms in unison with said rod, whereby the alternative admission of vacuum into said first and second vacuum operational chambers causes the alternative decrease of capacity in said first and second pump chambers to affect the pumping operation due to reciprocation of said first and second diaphragms in unison with said rod.

4,334,838
DIAPHRAGM TYPE FLUID PUMP HAVING A FLEXIBLE DIAPHRAGM WITH AN INTERNAL REINFORCING PLATE

Herman S. Fessler, Coon Rapids, Minn.; William S. Credle, Jr., and William A. Harvill, both of Stone Mountain, Ga., assignors to The Coca-Cola Company, Atlanta, Ga. and The Cornelius Company, Anoka, Minn.

Filed Jan. 29, 1980, Ser. No. 116,505
Int. Cl.[3] F04B *43/06*
U.S. Cl. 417—395 5 Claims



1. A diaphragm assembly for a diaphragm type fluid pump, comprising:

a substantially planar and rigid diaphragm plate having a front and rear side, a central aperture therethrough, and a pattern of perforations around and generally concentric to the central aperture;

an integral one-piece elongate and rigid motor stem mounted in and through the plate aperture, said stem having an elongate body extending from the plate rear side;

a diametrically enlarged head on the stem, said head being of a larger diameter than the elongate body and being abutted against and protruding forward of the plate front side;

a relatively flexible elastomeric diaphragm molded to the plate and stem, said diaphragm having an imperforate layer covering the entirety of the plate front side and the stem head; and

in which the diaphragm has

(a) an imperforate monolithic front layer secured to the plate, and covering the entirety of the plate front side and the stem head;

(b) integral pins extending from the front layer and through the plate perforations;

(c) a rear layer integrally connected to the front layer by and through the pins; and

(d) perforations through the rear layer, the plate perforations and the diaphragm pins therein being spaced from any of the diaphragm rear layer perforations.

4,334,839
HAND OPERATED, DUAL CHAMBERED, PNEUMATIC PUMP

Rodger H. Flagg, 1415 Lynn Ave., Fort Wayne, Ind. 46805

Filed Sep. 22, 1978, Ser. No. 944,847
Int. Cl.[3] F04B *23/06, 33/00*
U.S. Cl. 417—536 4 Claims

1. An inflating apparatus comprising:

a plurality of cylinders;

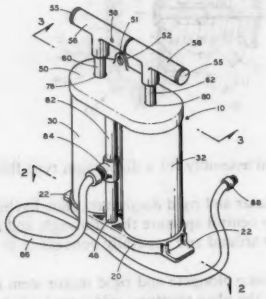
a plurality of pistons, each piston being reciprocably driven by a piston rod in a respective cylinder; each of said pistons being in sliding contact with its respective cylinder wall to form a first chamber on one side of said each piston and a second chamber on the other side of said each piston opposite to said one side; each of said first and second chambers being volumetrically variable and proportional to the axial position of its respective piston in its cylinder;

first means comprising a check valve for admitting fluid to each of said first chambers upon movement of the respective pistons in one direction that volumetrically enlarges said first chambers;

second means comprising a check valve for exhaust of fluid from said first chambers upon movement of the respective pistons in a second direction opposite to said one direction that volumetrically reduces said first chambers;

a plurality of elongated handles, a handle being attached to each said piston rod and each handle having a portion extending transversely from said rod to provide for manual force application to reciprocate each piston in its respective cylinder;

third means for longitudinally aligning and releasably holding said handles in longitudinal alignment whereby said handles may be conjointly operated and move their respective piston rods and pistons in unison, and for releasing said handles from one another whereby said handles are manually movable independently of one another, to



provide a variable flow inflating apparatus, wherein said third means comprises means for rotating each of said handles about its respective piston rod axis into mechanically held transverse longitudinal alignment, and to rotate said handles out of said mechanically held alignment by releasing said handles from one another, whereby said handles may be moved independently of one another, wherein said handles are rotatable about their respective piston rod axis into and out of said mechanically locked alignment; one of said handles being rotatable into a predetermined axial position from said longitudinal alignment; and

a fourth means for releasably holding said one handle in said predetermined axial position, to provide interference-free operation of the other handle.

4,334,840

GEAR PUMP OR MOTOR WITH SERRATED GROOVES ON INNER WALL FOR BREAK-IN OPERATION

Hideo Teruyama, Shobu, Japan, assignor to Kayaba Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 24, 1980, Ser. No. 114,884
Claims priority, application Japan, Jan. 26, 1979, 54/7251
Int. Cl.³ F01C *1/18, 21/10;* F03C *2/08;* F04C *2/18*
U.S. Cl. 418—1 **7 Claims**

1. A method of providing in a gear pump or motor a minimal clearance between a relatively smooth inner wall surface on the low pressure side of a bower and the crest of the gear teeth comprising the steps of

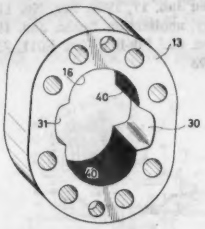
rotating the inter-meshing gears made of ferrous material having a pre-determined co-efficient of expansion at the maximum operational speed

in a bower made of ferrous material having a co-efficient of expansion substantially identical with the co-efficient of expansion of said gear teeth;

said bower having at least on the low pressure side of its inner wall surface serrations cut transverse to the rotation of said gear teeth;

allowing the crest of the gear teeth to impact on said serrations to wear down said serrations;

creating built-up edges on the crest of said gear teeth; and



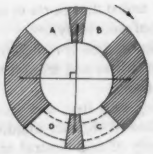
breaking off said built-up edges by impacting said crests on the angular part of said serrations.

4,334,841

MECHANICAL DEVICES FORMING AN ENGINE

Henry A. Barlow, 1189 Guildwood Blvd., London, Ontario, Canada

Filed Apr. 2, 1979, Ser. No. 26,241
Int. Cl.³ F01C *1/067, 21/04*
U.S. Cl. 418—38 **1 Claim**



1. A causal mechanism comprising in part three coaxial shafts, said shafts being called inner, outer and a final drive shaft, the outer drive shaft shall partly enclose the inner drive shaft and they shall each at the same end have a pair of radial arms extending outwards, these arms to be offset in such a manner that each pair will be centred to the other and the linkage that will enclose them on either side and to a surrounding stationary cam, the said linkage to consist of eight links of equal length, pivoted at their centres in pairs about each side of the radial arms, further each pair of links will be pivotally joined at the ends to the adjacent pairs of links; these sets of links will also support at their pivotal ends four sets of rollers held firmly by the said links on either side, the said rollers to be held to the enclosing cam; (variously the pairs of links may be integrated into single end wise surrounding units;) the radial arms, links and rollers form the rhomboid mechanism, the angular relationship of the components of the rhomboid mechanism being determined by the said cam, the pivotal ends of the rhomboid mechanism will also support, on one side, drive rollers, the said drive rollers being held outwards from the linkage into the slideways of a power-take-off coupling, the said power-take-off coupling will have mutually perpendicular slideways radiating out from its centre; variously the drive rollers may be replaced by slideblocks, the said power-take-off coupling will be firmly affixed about its centre to the final drive shaft, the said final drive shaft together with the power-take-off coupling is driven by or drives the rhomboid mechanism through the drive rollers, the mechanisms linkage will in turn derive or sustain torque from the combinational effect of opposing and or differing torque of the three drive shafts, together with the regimentation of movement imposed by the stationary cam through the cam rollers; the inner and outer

drive shaft extend away from the causal mechanism along the principal axis of a stationary cylinder of toroid or annular form, the said cylinder forming a chamber to enclose four movable partitions or pistons that separate the chamber into four sealed interspaces, the cylinder will have suitably located intake and exhaust ports together with provision for fuel injection and, or ignition of a combustible gas mixture; the cylinder will also have provision for the intrusion of a forward and rear driving disc, the said driving discs are immediately adjacent to each other with the forward and rear driving disc firmly affixed to inner and outer drive shafts respectively; each of the said driving discs will have a pair of diametrically opposed radial arms extended outwards into the cylinder cavity and so formed as to be offset and centred to the cylinder, the arms to pass within hollow pistons, the said pistons will be hollow and attachable to radial arms of the discs in such a manner that the loading to the arms by the pistons will be centred to the cylinder thus avoiding a twisting action of the pistons towards the cylinder walls; the said inner and outer drive shafts will impose, by means of the causal mechanism, to the pistons through the discs a uniform angular motion together with an angular harmonic motion; the rear driving disc shall be modified; the said modification to consist of two elements each of which will be a series of grooves contained within the disc face that laps the forward disc, the first element to be in part a complete annular groove of outer diameter slightly less than the outer diameter of the disc face from this groove a second groove will run into a cavity between the inner part of the forward and rear disc faces; the second element will consist of a groove in the form of an arc, the said arc to be of lesser diameter than the annular groove of the first element, the arc groove will not extend into the second groove of the first element; a series of grooves will extend from the arc groove into the cavity between the two discs, this series of grooves, the arc groove together with one or several holes cut through the disc from the arc grooves, form the second element; the combination of the said elements meet the imperative needs of an engine of this type, the first element preventing a separation of the mating faces of the discs by virtue of pressure between the faces; the said second element distributes lubrication entering the cavity between the disc by escapage between the drive shafts and returns excess amounts to the causal mechanism casing, variously the elements so described may be incorporated into the forward driving disc; this combination of components and mechanism conform to the principal unit of a radial flow internal combustion engine or variously a compressor or pump.

4,334,842

ROTARY PUMP WITH RADIAL YIELDABLE PARTITIONS AND ROTATABLE SIDE PLATE

Yoshi Ikeda, No. 3-3-17, Sekimae, Musashino-shi, Tokyo; Kenji Osada, No. 3-7-15, Asagaya-Minami, Suginami-ku, Tokyo, and Kazumi Doi, No. 2-14-21-203, Mure, Mitaka-shi, Tokyo, all of Japan

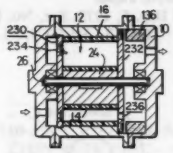
Continuation of Ser. No. 730,303, Oct. 7, 1976, abandoned, which is a division of Ser. No. 464,926, Apr. 29, 1974, Pat. No. 4,004,865. This application Feb. 1, 1979, Ser. No. 8,506

Claims priority, application Japan, May 1, 1973, 48-49511; Nov. 16, 1973, 48-129061; Dec. 3, 1973, 48-135960; Feb. 13, 1974, 49-17924

Int. Cl.³ F04C *5/00, 15/02*

U.S. Cl. 418—45 **4 Claims**

1. A volume pump having a pump chamber formed between inner and outer concentrically arranged sleeves, a plurality of generally radially directed yieldable sheet-like partitions spaced circumferentially and extending between and engaging said inner and outer sleeves, said partitions forming with said inner and outer sleeves, respectively, a plurality of compartments each extending in radial direction the full extent between said sleeves, separate side plates for closing opposite ends of said compartments defined by said sleeves and said generally radially directed partitions, one of said side plates being stationary and the other of said side plates being rotatable, one of said plates having suction inlet means for the compartments formed therein and the other of said side plate having delivery outlet means for the compartments formed therein and rotatable deflection means within said inner sleeve to successively change the volume of said compartments.



4,334,843

GEROTOR MACHINE WITH VALVE PLATES ATTACHED TO WHEEL GEAR

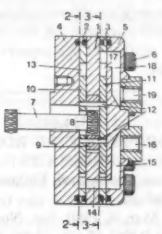
Christian B. Hansen, Nordborg, Denmark, and Carl D. Flagstad, Sonderborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Filed May 5, 1980, Ser. No. 146,346

Claims priority, application Fed. Rep. of Germany, May 17, 1979, 2919871

Int. Cl.³ F01C *1/10, 21/12;* F03C *2/08;* F04C *2/10*

U.S. Cl. 418—61 B **1 Claim**

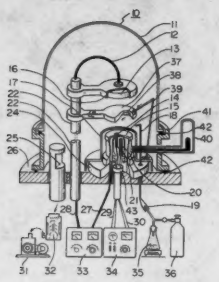


1. A rotary piston machine, comprising, a casing, radially inner and outer gerotor type wheel and ring gears having rotatable and orbital movement relative to each other and being operable to form expansible chambers therebetween with the orbital movement of said wheel gear relative to said ring gear causing the line of eccentricity therebetween to rotate relative to the axis of said ring gear, said ring gear being in fixed relation to said casing, drive means connected to said wheel gear, said wheel gear having distributor valve plates attached to opposite sides thereof, said casing forming axially spaced sidewalls engaging said valve plates in sealing engagement and forming with said casing and said ring gear first and second chambers respectively and radially surrounding said plates, inlet and outlet ports in said casing respectively connected to said chambers, said valve plates having peripheral recesses with edges which are cooperable with said ring gear so that when said drive means rotates in one direction one of said valve plates sequentially opens said expansible chambers on one side of said line of eccentricity while the other of said valve plates sequentially opens said expansible chambers on the other side of said line of eccentricity, and vice versa.

4,334,844
REPLICA FILM OF SPECIMEN FOR ELECTRON MICROSCOPY APPARATUS

Akira Tanaka, Souka, Japan, assignor to Tokyo Metropolitan Government, Tokyo, Japan

Filed Dec. 5, 1979, Ser. No. 100,280
Int. Cl.³ H05H *1/00*
U.S. Cl. 425—2 3 Claims



1. An apparatus for preparing a replica film of a specimen for electron microscopy comprising:

(a) a pair of electrodes one being an upper positive electrode and the other being a lower negative electrode which parallelly face each other with a distance therebetween and which are placed in a vacuum vessel on a base plate, said both electrodes being electrically and thermically insulated from the vacuum vessel and the base plate and being surrounded by minute discharge prevention cylinders;

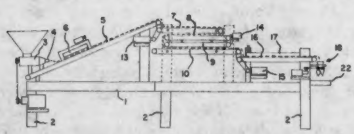
(b) a direct high-voltage electric source connected to said negative and positive electrodes for effecting a glow discharge between the two electrodes; and

(c) means for forming a polymer substance film derived from organic monomer vapors on the surface of a specimen placed on the surface of the negative electrode by plasma polymerization.

4,334,845
MACHINE FOR PRODUCING ROLLS OF BAKERY PRODUCTS

Teijo T. T. Tamminen, Julkujarvi, Finland, assignor to Henberg Oy, Helsinki, Finland

Filed Mar. 4, 1980, Ser. No. 127,026
Int. Cl.³ B29C *17/00, 23/00*; B29F *3/00*
U.S. Cl. 425—104 20 Claims



1. A machine assembly for producing continuous rolls of uniformly sized bakery products such as biscuits and the like, and comprising:

a machine framework supporting an inlet work station and an outlet work station spaced from one another;

said inlet work station including a dressing means having at least one outlet nozzle for forming at least one continuous bar of dough;

said outlet work station including steering funnel means for shaping said at least one continuous bar of dough into a continuous spiral;

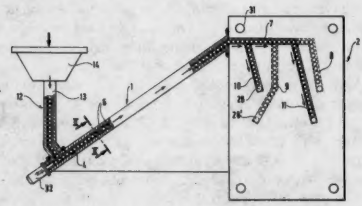
a conveyor assembly providing a continuous passageway moving in a direction parallel to a longitudinal axis of said continuous bar of dough between said inlet work station and said outlet work station, thereby transporting a portion of said continuous bar of dough to said outlet work station while simultaneously transporting a further portion of said continuous bar of dough from said inlet work station; and

means for kneading and rolling said at least one continuous bar of dough during passage between said inlet and outlet work stations, respectively.

4,334,846
APPARATUS FOR AUTOMATICALLY FEEDING BUSHINGS INTO A PRESS FOR MOULDING COVERS FOR STORAGE BATTERIES

Jean-Paul Boniface, Flamicourt, and Gilbert Ponceblanc, Amiens, both of France, assignors to Societe Anonyme dite Compagnie Europeenne d'Accumulateurs, Paris, France

Filed Mar. 24, 1981, Ser. No. 247,129
Claims priority, application France, Mar. 27, 1980, 80 06835
Int. Cl.³ B79C *6/00*
U.S. Cl. 425—126 R 5 Claims



1. Apparatus for automatically feeding bushings into a press for moulding covers for storage batteries wherein the apparatus includes a pipe for conveying the bushings, said pipe having at least one bushing-conveying compartment and being substantially horizontal inside the press, the or each of its compartments being subdivided into at least one descending branch each of which communicates with a bore provided in a first moving part of said press, push rods being linked to the stationary part of the press, which push rods can each be inserted in one of said bores during the translation movement of said moving part, studs being provided on a second moving part of the press and each being disposed adjacent to one of said bores so that firstly before moulding, when the press is closed by the translation movement of the two moving parts such that they abut against the stationary part of the press the push rods push a bushing into each bore until the bushing mates with the stud, and secondly, after moulding when the press is opened, another bushing drops by gravity into the bore at the end of said push rod.

4,334,847
INJECTION MOLDING DEVICE FOR MOLDING BODIES OF NATURAL OR SYNTHETIC RUBBER

Gunther Schauffele, Walheim, Fed. Rep. of Germany, assignor to Werner & Pfleiderer, Stuttgart, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 53,548, Jun. 28, 1979, abandoned, which is a continuation of Ser. No. 737,843, Nov. 1, 1976, abandoned. This application Apr. 7, 1980, Ser. No. 137,584
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1975, 2549813
Int. Cl.³ B29F *1/03, 1/05*
U.S. Cl. 425—227 6 Claims

1. An injection molding device for producing molded bodies of natural or synthetic rubber type plasticized material, said device comprising a vertical press including in combination:

a stationary lower cross head,

a movable upper cross head,

uprights supporting the upper cross head for movement with respect to the lower cross head,

a heatable pressure mold including upper and lower mold halves respectively supported by the cross heads for being opened and closed upon movement of the upper cross head;

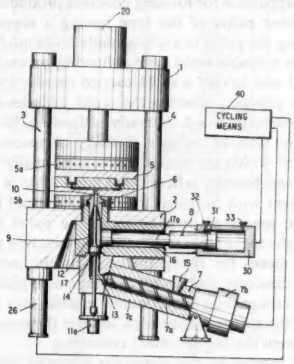
a feed duct mounted in said lower cross head for feeding the material to said mold;

plasticizing feed means engaged with said lower cross head and directly communicatng with one end of said duct for feeding plasticized material into said duct;

a removable nozzle in the other end of said duct communicating directly with said mold for feeding material from said duct into said mold, said nozzle comprising a body having a nozzle opening of determined length and width and a conically flared passageway joined to said nozzle opening and extending therefrom towards said feed duct;

injection means supported by and within said lower cross head in superposed relation above said plasticizing feed means for injecting plasticized material in said duct into said mold via said nozzle, said injection means including a casing mounted in said lower cross head directly communicating with said duct at a point intermediate said nozzle and said plasticizing feed means;

valve means for controlling the feeding of plasticized material from said plasticizing means into said duct and said



injection means, said valve means including a valve head and a valve seat provided in the duct intermediate the connections with said plasticizing feed means and said injection means, said valve head being reciprocable so that movement towards said nozzle opens said duct for feeding material by said plasticizing feed means into said duct and movement towards said one end blocks such feed of material, said valve means further including a piston connected to said valve head for reciprocating said valve head;

a nozzle cleaning member fitting the width and length of the nozzle opening;

a coupling rod connecting said cleaning member to said valve head so as to insert said cleaning member into the nozzle opening when the valve head is moved into its open position and to withdraw the cleaning member from the nozzle opening upon closing of said valve head, said nozzle cleaning member being disposed in said flared passageway with its end in proximity to said nozzle opening with the valve head in closed position, said nozzle cleaning member penetrating into said nozzle opening and extending the full length thereof in tight-fitting manner with the valve head in open position to constitute a means for fully cleaning said nozzle opening of residues of plasticized residual material; and

control means coacting with said piston for opening and closing said valve head, wherein the length of said rod and the axial movement of the valve head are so correlated that the axial displacement of the valve head upon opening of the valve moves said cleaning member into the nozzle opening and the closing movement of the valve head withdraws the cleaning member therefrom.

4,334,848

APPARATUS FOR CENTRIFUGAL MOLDING OF CONCRETE PIPE

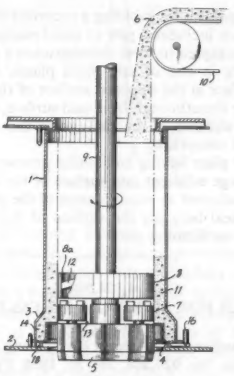
Paul Gross, Neftenbach, and Ruedi Kleeli, Winterthur, both of Switzerland, assignors to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland

Filed Mar. 4, 1980, Ser. No. 127,073

Claims priority, application Switzerland, Mar. 8, 1979, 2230/79

Int. Cl.³ B28B *21/24*

U.S. Cl. 425—262 **11 Claims**



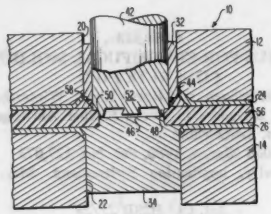
1. Apparatus for the radial centrifugal molding of axially extending sections of concrete pipe having a bell at one end thereof comprising an upwardly extending mold for forming the radially outer axially extending circumferential surface of the section of concrete pipe, the lower end of said mold being shaped to form the bell end of the section of concrete pipe, an upwardly extending shaft located within and spaced inwardly from said mold, a drum mounted on said shaft for rotation within said mold, said drum having a radially outer circumferential surface spaced radially inwardly from the inner surface of said mold, a plurality of rotatable rollers located around said shaft above said drum, said rollers arranged to press the inside surface of the concrete poured into said mold in the radially outward direction against the inner surface of said mold, wherein the improvement comprises a pressure wheel located within said mold extending around said shaft and positioned upwardly from said rollers, said pressure wheel having a tubular circumferential surface part extending in the axial direction of and encircling said shaft and spaced radially outwardly from said shaft and radially inwardly from the inner surface of said mold so that said circumferential surface part contacts a tubular-like axially extending portion of the inner surface of the concrete pressed against the inner surface of said mold for limiting the upward flow of the poured concrete and increasing the concrete pressure in the space in the bottom of said mold forming the bell of the section of concrete pipe, and said pressure wheel forming open spaces between said circumferential surface part thereof and said shaft so that the concrete poured into the mold passes downwardly through the open spaces to said drum.

4,334,849

APPARATUS FOR MOLDING A RECORDED DISC

Marvin D. Bock, Greenwood, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 3, 1981, Ser. No. 231,264
Int. Cl.[3] B29D *17/00*
U.S. Cl. 425—290 6 Claims



1. In an apparatus for molding a recorded disc from a plastic material which includes a pair of mold plates having opposed surfaces and adapted to form therebetween a disc mold cavity, a center plate in one of said mold plates, said center plate having a surface at the opposed surface of the one mold plate and a passage therethrough from said surface, and a center hole forming pin slidable in the passage in the center plate, the improvement comprising

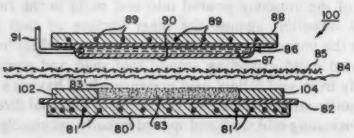
said center plate having an annular groove in the surface of the passage adjacent said surface of the center plate, said groove adapted to receive some of the plastic material to form a seal between the surface of the passage and the center hole forming pin.

4,334,850

APPARATUS FOR MAKING A STRESS-FREE PLASTIC ARTICLE

Armen Garabedian, 8-22 Astoria Blvd., Long Island City, N.Y.

Division of Ser. No. 929,304, Jul. 31, 1978, Pat. No. 4,243,368, which is a continuation-in-part of Ser. No. 817,048, Jul. 19, 1977, Pat. No. 4,104,101, and Ser. No. 647,832, Jan. 9, 1976, abandoned, which is a continuation of Ser. No. 424,654, Dec. 14, 1973, abandoned, which is a continuation of Ser. No. 141,495, May 10, 1971, abandoned, which is a division of Ser. No. 805,093, Feb. 14, 1969, abandoned, which is a continuation of Ser. No. 536,140, Mar. 21, 1966, abandoned, which is a continuation-in-part of Ser. No. 473,342, Jul. 20, 1965, Pat. No. 3,383,265, said Ser. No. 817,048, is a continuation of Ser. No. 279,964, Aug. 11, 1972, abandoned, which is a continuation-in-part of Ser. No. 141,495, , abandoned. This application Dec. 23, 1980, Ser. No. 219,436
Int. Cl.[3] A01J *21/00*
U.S. Cl. 425—388 8 Claims



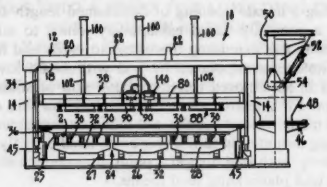
1. An apparatus for making a plastic article from finely divided plastic particles utilizing heat and pressure comprising: a pair of members movable relative to each other, the first of said members including a flexible diaphragm positioned in opposed relationship to the second of said members, a microporous air release and parting means positioned between said flexible diaphragm and said second member, means for applying fluid pressure to said diaphragm to cause said diaphragm to press against plastic particles positioned between said diaphram and said second member, and means for heating said plastic particles while applying pressure thereto to melt and consolidate the same and to produce thereby a stress-free plastic article.

4,334,851

CONCRETE FORMING APPARATUS

Joseph H. Wieser, Rte. 2, Maiden Rock, Wis. 54750

Continuation of Ser. No. 11,316, Feb. 12, 1979, abandoned. This application Sep. 19, 1980, Ser. No. 188,432
Int. Cl.[3] B28B *7/00;* B29C *1/16*
U.S. Cl. 425—412 1 Claim



1. An apparatus for forming concrete products on a substantially planar pallet of the type having a support frame for supporting the pallet in a substantially horizontal orientation; a vertically movable mold table defined by an enclosing peripheral wall and having a mold carried therein for forming the concrete product, wherein the mold includes a plurality of rigidly interconnected, laterally extending beams disposed within the wall to define a plurality of spaces between the beams and within the wall, the spaces normally being open at the top and bottom, wherein the mold table is movable into engagement with the pallet to engage the mold therewith and close the spaces at their bottoms, the pallet being located beneath the mold table to support the concrete product being formed; means for filling the mold in the mold table with uncured concrete; and a vertically movable platen for engaging and compacting the concrete placed into the mold, by entering the spaces at their tops, to form the concrete product; and wherein the improvement comprises:

means located on the platen for engaging and holding the mold down on the pallet during a concrete compaction process, wherein the mold holding means comprises a plurality of fluid cylinders fixedly located on the platen, wherein each cylinder has a reciprocal piston rod which extends downwardly through the platen and is movable relative to the cylinder and the platen for engaging various of the beams and forcing the mold in a downward direction, and further including means for simultaneously supplying a pressurized fluid to the cylinders for moving the piston rods downwardly to engage against the mold and force it against the pallet, and wherein the cylinders are of sufficient number and are spaced sufficiently far apart on the platen so as to hold the mold on the pallet without movement during the concrete compaction process.

4,334,852

APPARATUS FOR BLOW MOLDING A HOLLOW PLASTIC ARTICLE HAVING A RELATIVELY WIDE NECK

Thomas R. Haubert, Holland Landing, Canada, assignor to Supreme Casting & Tooling, Rexdale, Canada

Division of Ser. No. 55,204, Jul. 5, 1979, abandoned. This application Mar. 30, 1981, Ser. No. 248,734
Int. Cl.[3] B29C *17/07*
U.S. Cl. 425—525 6 Claims

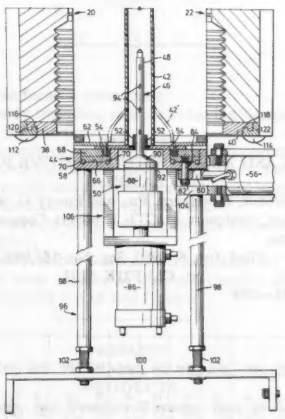
1. Apparatus for moulding hollow plastic articles, each

having a body portion and a relatively wide neck at one end, the apparatus comprising;

a partible mould comprising mould parts movable between open and closed positions and defining in said closed position a mould cavity of a shape appropriate to the required external shape of the article and extending about a generally upright longitudinal axis, said mould cavity having adjacent one end thereof surface portions for defining said neck of the article;

means for positioning between the open mould parts generally on said axis a relatively narrow mouldable tubular parison with an open lower end portion of the parision extending beyond the said one end of the mould cavity;

means mechanically engageable with said end portion of the parison and adapted to expand said portion to a size approximating the required final size of the neck of the article while leaving said open lower end of the parison unobstructed, said means including: a plurality of parison engaging elements arranged to project into said open end portion of the parison generally parallel to said longitudinal axis of the mould cavity; a plurality of slide members corresponding to said plurality of parison engaging elements, each member supporting one of said elements at an inner end thereof with the element projecting upwardly from the member, generally normally therefrom; an annu-



lar housing defining a central opening and supporting said slide members for horizontal sliding movement radially of the housing along rectilinear paths disposed normal to said axis between first positions in which the elements are disposed closely adjacent one another to permit a parison to be positioned over said elements, and second positions in which the elements have been displaced outwardly to expand the parison; and means for simultaneously moving the elements between said first and second positions comprising an actuator ring supported by said housing for turning movement about an axis of said central opening defined by the housing; actuator means for turning said ring through a predetermined angular amount; and cam means coupling said actuator ring and said slide members and arranged to cause longitudinal sliding movement of the members in response to turning movement of the ring;

a mandrel movable through said central opening of the annular housing and into said open lower end of the parison between a retracted position clear of said mould parts and an advanced position within the parison, said mandrel being shaped to co-operate with said surface portions of the mould cavity when the mould is closed, to form the neck of the article;

means for closing the end of the parison opposite said one end; and,

means for introducing air into the interior of the parison to cause the parison to expand, whereby the parison adopts the shape of the mould cavity.

4,334,853

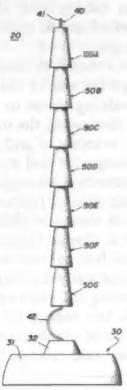
METHOD OF BURNING INCENSE

Samuel M. Gardner, Sparta, N.J., assignor to Genieco, Inc., Chicago, Ill.

Filed Feb. 28, 1980, Ser. No. 125,470

Int. Cl.³ F23Q *2/32*

U.S. Cl. 431—2 **10 Claims**



1. A method of burning incense comprising the steps of providing a stand including a carrier rod, providing a supply of incense beads each being a solid body with a hole therethrough and perfumed with a fragrance, said supply including a plurality of each of several different fragrances, selecting from the supply a number of beads including beads of different fragrances, removably threading the selected beads onto the carrier rod in a stack in a predetermined order, then igniting one of said beads at one end of the stack, whereby said beads will burn continuously one after another to emit a plurality of different fragrances in the predetermined order.

4,334,854

METHOD OF CONTROLLING THE COMBUSTION OF LIQUID FUEL

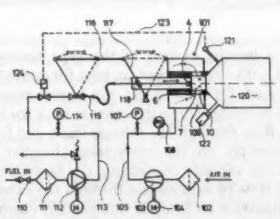
Johannes W. Graat, Overasselt, and Hans J. Remie, Nijmegen, both of Netherlands, assignors to Smit Ovens Nijmegen B.V., Nijmegen, Netherlands

Filed Jun. 21, 1978, Ser. No. 917,539

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1977, 2729321

Int. Cl.³ F23C *5/00, 5/06*

U.S. Cl. 431—8 **2 Claims**



1. A method of mixing combustion air and liquid fuel for obtaining substantially stoichiometric combustion of the liquid

fuel in a burner assembly having a slideable fuel nozzle moveable to vary the size of a fuel and air mixing chamber and a fuel valving means variable over a wide range of fuel flow rates and having a control means for sliding said nozzle and operating said fuel valving means so that the ratio of fuel and air will be substantially constant with changes in the flow rate of fuel flowing in a fuel stream from the nozzle;

said method comprising the steps of:

regulating the flow rate of fuel to said nozzle by the valving means;

introducing a part of the combustion air at the side of the axis of the fuel stream issuing from the fuel nozzle to aid in atomization of the fuel and to maintain fuel particle size in a predetermined range;

operating said control means to slide said fuel nozzle in one direction to change the size of the air inlet opening and to operate said fuel valving means to reduce the fuel flow rate and automatically decreasing the size of the mixing chamber and increasing the velocity of said part of combustion air to provide greater energy for fuel atomization and decreasing the volume of combustion air supplied to the mixing chamber to maintain said ratio of fuel and air; and

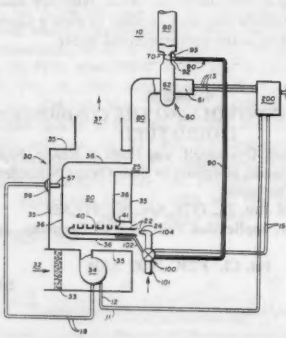
operating said control means to slide said fuel nozzle in the opposite direction to change the size of the air inlet opening and to operate said fuel valving means to increase the fuel flow rate and automatically increasing the size of said mixing chamber and lowering the velocity of said part of combustion air to provide less energy for fuel atomization and increasing the volume of combustion supplied to the mixing chamber to maintain said ratio of fuel to air.

4,334,855

FURNACE CONTROL USING INDUCED DRAFT BLOWER AND EXHAUST GAS DIFFERENTIAL PRESSURE SENSING

Lorne W. Nelson, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 21, 1980, Ser. No. 170,358
Int. Cl.³ F23J *3/00, 1/08*
U.S. Cl. 431—20 **13 Claims**



1. In a heating system of the type having a combustion chamber with a fuel burner, an inlet for combustion air, and an exhaust stack for exhaust gas, the improvement comprising:

a blower connected to the exhaust stack for inducing exhaust gas flow through the exhaust stack and for drawing combustion air into the combustion chamber;

means for variably controlling the flow of exhaust gas such that flow of exhaust gas through the exhaust stack and of combustion air into the combustion chamber are simultaneously regulated; means adapted to be mounted in the exhaust stack for forming a flow restriction in the exhaust stack on one side of the blower, said flow restriction, in cooperation with said blower, causing a pressure differential between the exhaust gas pressures on either side of the flow restriction;

first fuel supply control means having an "on" state and an "off" state and being adapted to control the supply of fuel to the burner responsive to a control signal representative of the exhaust gas pressure differential across the flow restriction, whereby said first control means is turned "on" when the pressure differential exceeds a first, predetermined value and is turned "off" when the pressure differential falls below a second, predetermined value, which is less than said first predetermined value;

second fuel supply control means adapted to variably control the supply of fuel to the burner responsive to the state of the first fuel supply control means and to a control signal representative of the exhaust gas pressure differential across the flow restriction, whereby the supply of fuel is regulated to a rate proportional to the magnitude of the pressure differential during the period when said first control means is "on"; and

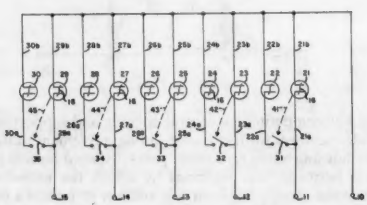
means for sensing the exhaust gas pressure differential across the flow restriction and for communicating said sensed pressure differential as a control signal to the first and second fuel supply control means.

4,334,856

PHOTOFLASH ARRAY WITH SELECTIVE PAIRING OF LAMPS

David R. Broadt, Lewisburg, Pa., and Emery G. Audesse, Beverly, Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jun. 6, 1980, Ser. No. 156,983
Int. Cl.³ F21K *5/02*
U.S. Cl. 431—359 **8 Claims**



1. A photoflash lamp array comprising, in combination:

a plurality of 2n flashlamps, each having a pair of lead-in wires;

a common terminal means electrically connected to one lead-in wire of each of said 2n lamps;

a plurality of n selective terminal means, each associated with a respective pair of said 2n lamps and directly connected in electrical circuit to the non-common lead-in wire of one of the lamps of the respective pair; and

a plurality of n normally open switches, each coupled in electrical circuit between the non-common lead-in wires of an associated one of said respective pairs of 2n lamps;

said common and selective terminal means being adapted for connection to a source of firing pulses, and each of said switches being responsive to the flashing of the directly connected lamp of an associated pair so as to electrically connect the other lamp of said associated pair to the associated selective terminal means.

4,334,857
CRUCIBLE FURNACE

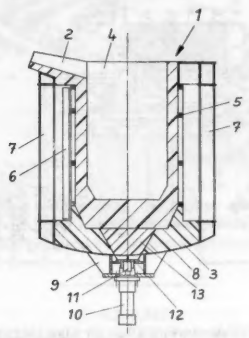
Artur Smitka, Schwerte, and Josef Rabe, Dortmund, both of Fed. Rep. of Germany, assignors to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed May 14, 1980, Ser. No. 149,751

Claims priority, application Fed. Rep. of Germany, May 16, 1979, 2919705

Int. Cl.³ F27D *7/00*; F27B *14/00*

U.S. Cl. 432—3 **7 Claims**



1. A crucible furnace comprising:
a furnace body including side walls having heating means;
a fireproof furnace floor;
a crucible formed of pulverized sinterable fireproof material, said crucible resting on said furnace floor, said crucible also contacting and being supported by said heating means of said side walls of said furnace; and
a crucible ejection device acting on the underside of said furnace floor,
whereby said crucible is at least partially sintered in use and contracts upon cooling so that said ejection device may lift said crucible out of said furnace.

4,334,858
PREVENTION OF THERMAL SPALLING IN CERAMIC PRODUCTS

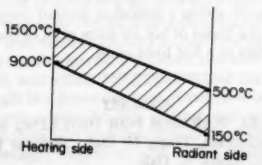
Makoto Iiyama, and Yasujiro Koyama, both of Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 24, 1980, Ser. No. 171,988

Claims priority, application Japan, Aug. 6, 1979, 54-99423

Int. Cl.³ F27D *3/00, 5/00*

U.S. Cl. 432—9 **10 Claims**



1. A method for heat treating ceramic products to prevent spalling when they are subsequently heated consisting essentially of
heating one side of said ceramic product to a temperature of least 800° C. at which the portion of said ceramic product adjacent said heated side will re-sinter while maintaining an opposed side of said ceramic product at a temperature of at least 400° C. lower than the temperature of said heated side to provide a temperature gradient between said sides and cooling said ceramic product to provide a residual stress in the interior of said ceramic product which acts to prevent thermal spalling on reheating.

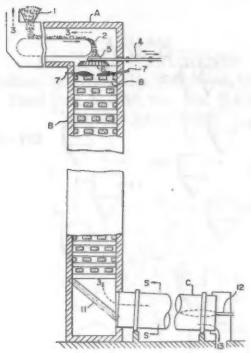
4,334,859
METHOD AND APPARATUS FOR MELTING MATRIX MATERIALS

Susumu Minegishi, and Mikio Minegishi, both of Higashiteraocho 4-17-25, Tsurumi-ku, Yokohama-shi, Japan

Filed Jul. 20, 1978, Ser. No. 926,397

Int. Cl.³ F27B *14/00*

U.S. Cl. 432—13 **2 Claims**



1. A process for melting matrix materials which form highly viscous liquids in an apparatus including a drying conveyor, a vertical shaft furnace and a direct fired rotary kiln which are serially connected and adapted to conduit combustion gases from the rotary kiln upwardly through the vertical furnace and across the drying conveyor countercurrent to the flow of matrix material, the steps comprising feeding solid particulate matrix material onto the drying conveyor, distributing dried and heated material from the conveyor across the top of the vertical furnace to contact upwardly rising hot combustion gases from the rotary kiln, cascading melting matrix material downwardly through the vertical furnace over a series of gas-liquid contact means comprising a plurality of vertically spaced rows of parallel refractory bars, said bars spaced apart horizontally about one bar width with adjacent rows being angularly displaced by about 90° and alternate rows being offset horizontally about one bar width whereby open gas channels are maintained from the top to the bottom of the vertical furnace, and passing viscous, molten matrix material from the furnace bottom into the rotary kiln for further heating and mixing.

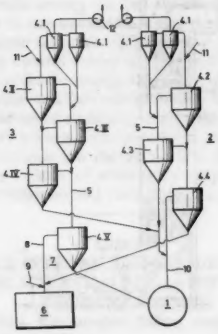
2. Apparatus for melting matrix materials which form highly viscous liquids comprising a drying conveyor, a vertical shaft furnace and a direct fired rotary kiln all serially connected and adapted to conduct combustion gases from the rotary kiln upwardly through the vertical furnace and across the drying conveyor countercurrent to the flow of matrix materials, said furnace containing gas-liquid contact means, said means comprising a plurality of vertically spaced rows of parallel refractory bars, said bars spaced apart horizontally about one bar width, adjacent rows of bars being angularly displaced by approximately 90° and alternate rows being offset horizontally approximately one bar width to thereby create and maintain a large surface area for gas-liquid contact while allowing free passage of gas upwardly through the furnace.

4,334,860

SYSTEM AND METHOD FOR THE HEAT TREATMENT OF FINE GRAINED MATERIALS

Horst Herchenbach, Troisdorf, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Continuation of Ser. No. 874,497, Feb. 2, 1978, Pat. No. 4,218,210. This application Apr. 11, 1980, Ser. No. 139,407
Claims priority, application Fed. Rep. of Germany, Feb. 10, 1977, 2705566
The portion of the term of this Patent subsequent to Nov. 19, 1997, has been disclaimed.
Int. Cl.³ F27B *15/00, 7/02*
U.S. Cl. 432—14 1 Claim



1. A method for heat treatment of fine grained material to be used in the manufacture of cement which comprises the steps of:

passing a first portion of said fine grained material successively through a first row of cyclone separator stages operating at successively higher temperatures in each stage,

passing said first portion after the last stage of said first row of cyclone separator stages into a calcination furnace,

passing a second portion of said fine grained material successively through a second row of cyclone separators containing one more stage than said first row,

passing said second portion after the last cyclone separator stage in said second row into a material cooler,

adjusting the temperature of the gases from the hottest cyclone separator stage in said second row of cyclone separators to at least 100° C. higher than the gases from the hottest cyclone separator stage in said first row,

distributing the fine grained material between the first and second rows such that the temperature levels of the exhaust gases of a penultimate cyclone separator stage in each said row are substantially the same,

combining the fine grain materials discharged from the penultimate cyclone separators in each row,

passing the combined discharged materials into the hottest cyclone separator stage in said first row,

separately pre-calcining said combined fine grained discharged material, and

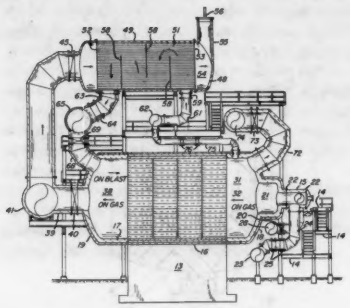
introducing the pre-calcined fine grained material into the hottest cyclone separator stage in said second row for completing the calcination of said pre-calcined material.

4,334,861

METHOD AND APPARATUS FOR GENERATING A HOT AIR BLAST

Francis H. Bricmont, Pittsburgh, Pa., assignor to Bricmont & Associates, Inc., McMurray, Pa.

Continuation-in-part of Ser. No. 191,141, Sep. 26, 1980, abandoned. This application Mar. 4, 1981, Ser. No. 240,281
Int. Cl.³ F24H *7/00;* F28C *3/10*
U.S. Cl. 432—30 10 Claims



6. A method of generating a hot air blast including the steps of:

feeding media for combustion into one end of a first of a plurality of horizontal regenerators to generate hot products of combustion,

passing said hot products of combustion along horizontal surfaces of regenerative heat storage refractory within the first horizontal regenerator to heat the refractory to a desired temperature,

discharging waste products of combustion into a recuperator from the opposite and second end of the first horizontal regenerator,

using said recuperator to preheat an air blast,

passing the preheated air blast along highly heated horizontal surfaces of regenerative heat storage refractory within a second horizontal regenerator to further heat the air blast to a temperature above a minimum desired temperature.

terminating the flow of the preheated air blast to the second horizontal regenerator when the minimum desired air blast temperature is no longer attainable,

terminating the supply of combustion media to said first horizontal regenerator when the heat storage refractory therein is highly heated,

passing the preheated air blast along the highly heated horizontal surfaces of regenerative heat storage refractory with said first horizontal regenerator for further heating to a temperature above a minimum desired temperature, and

conducting the blasts of hot air from each of the plurality of regenerators in a hot blast main.

4,334,862

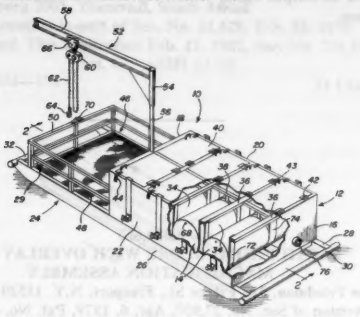
BARREL WARMER FOR DRILLING RIGS

Ernest R. Muckelrath, Tioga, N. Dak., assignor to Tioga Air Heaters, Inc., Tioga, N. Dak.

Filed Aug. 26, 1980, Ser. No. 182,395
Int. Cl.³ F27B *9/02;* E01C *19/45*
U.S. Cl. 432—128 10 Claims

1. A barrel warming device for storing a plurality of oil barrels comprising an enclosed housing adapted to hold in the interior thereof a plurality of oil barrels and placed on a transportable support, the interior of said housing comprising a plurality of individual compartments, each of said compartments capable of supporting a single barrel of oil and including a door which enables the barrels to be moved into and out of

said compartments, said device further including means to move said barrels into and out of said compartments, said housing including a heating means for supplying heat to barrels



contained within said housing, the surface area of said transportable support being larger than said housing, the space on said support not enclosed by said housing comprising a storage space.

4,334,863

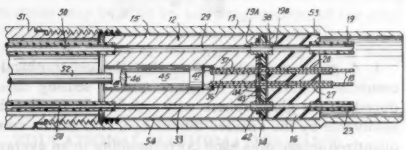
ILLUMINATOR FOR DENTAL HANDPIECE

Kenneth S. Magid, Somers, and William J. Becker, Hauppauge, both of N.Y., assignors to Kinetic Instruments Inc., Bethel, Conn.

Continuation of Ser. No. 129,511, Mar. 11, 1980, abandoned, and a continuation-in-part of Ser. No. 953,726, Oct. 19, 1978, abandoned. This application Mar. 16, 1981, Ser. No. 244,364

Int. Cl.³ A61C *3/00*

U.S. Cl. 433—29 **30 Claims**



1. Illuminator for a dental handpiece, said illuminator, when in use, generating a quantity of heat such that provision for preventing excessive temperature rise at the exterior thereof must be made while maintaining a high enough temperature in the interior thereof for satisfactory operation of same, comprising: replaceable plug-in unit means of generally cylindrical shape with a proximal and a distal end, said unit means including a cylindrical housing of a metal of high thermal conductivity, said unit means having an axially directed socket in one end thereof, said unit means including a quartz-halogen bulb seated in said socket with clearance between the wall of said socket and said bulb, said socket being open at said one end for transmission of light in a generally axial direction toward said handpiece, said unit means having at least one channel leading therethrough from said proximal to said distal end for transit of fluid therethrough, alignment tube means seated in the proximal end of each said channel, and pins protruding from said proximal end of said unit means for seating in jacks for bringing current to said pins;

connector means of an insulating material, said connector means having a proximal and a distal end, and including electrical jacks for receiving said pins for making contact therewith, said connector means having at least one channel therethrough for receiving each of said alignment tubes in the distal end thereof for transit of fluid between said connector means and said unit means and for receiving in the proximal end thereof supply tubing whereby fluid may be transferred between said supply tubing and said dental handpiece through said connector means and said unit means; and

generally cylindrical, hollow shield means arranged and constructed for holding said connector means and for holding said unit means with clearance, said shield means being of a material of low thermal conductivity and having a proximal end and a distal end, said shield means having an internal shoulder for bearing against the proximal end of said connector means, and said shield means including attachment means for receiving a dental handpiece and drawing the proximal end thereof into tight contact with the distal end of said unit means.

4,334,864

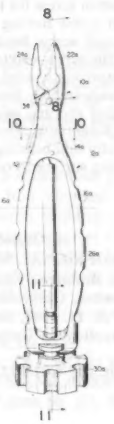
DENTAL INSTRUMENTS

Victor H. Rubino, 38 Brookridge Rd., Avon, Conn. 06001

Filed Dec. 2, 1980, Ser. No. 212,136

Int. Cl.³ A61C *3/00*

U.S. Cl. 433—158 **11 Claims**



1. A tooth extracting instrument comprising a longitudinally extending unitary handle having a forward part and a pair of grips having forward end portions integrally connected in fixed relation to each other and to said forward part and extending rearwardly from said forward part in fixed spaced relation to each other, said handle having a rear part integrally connected in fixed relation to and extending transversely between the rear ends of said grips, a first beak supported in fixed position on said forward part, a second beak supported by said handle for movement generally toward and away from said first beak, and means for moving said second beak generally toward said first beak and including an elongated operating rod supported by said forward part and said rear part for longitudinal sliding movement relative to said handle and extending longitudinally of said handle between and in spaced relation to said grips, said operating rod extending through said rear part and having a rear portion extending rearwardly beyond said rear part, and manually operable means engaged with said rear portion of said operating rod and supported by said rear part for moving said operating rod relative to said handle, said manually operable means cooperating with said operating rod to maintain said first and second beaks in selected position relative to each other.

4,334,865

DENTAL OBTURATION SCREW

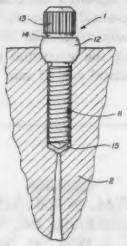
Jean-Pierre Borle, Rue Camille-Martin No. 20, 1203 Geneve, Switzerland

Filed Oct. 30, 1980, Ser. No. 202,434

Claims priority, application Switzerland, Nov. 5, 1979, 9901/79

Int. Cl.[3] A61C 5/08

U.S. Cl. 433—221 5 Claims



1. A dental obturation screw for inserting in the root canal of a natural tooth, said screw having a threaded cylindrical rod and a screw head, said screw head comprising a crown part allowing to actuate the screw and to fasten thereon an artificial tooth part, and comprising a solid uninterrupted bearing part of convex shape symmetrically arranged about the screw axis between said threaded rod and said crown part and having a greatest diameter substantially greater than the diameter of the threaded rod, whereby said bearing part is adapted to rest on a corresponding bearing surface to obturate the root canal of the natural tooth.

4,334,866

RADAR SIGNAL SIMULATOR

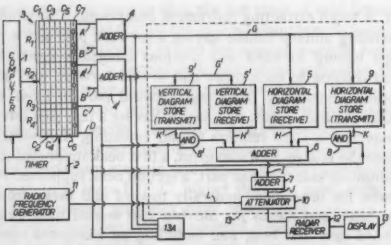
Michael J. Burrows, Braintree, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Feb. 11, 1980, Ser. No. 120,516

Claims priority, application United Kingdom, Feb. 14, 1979, 7905258

Int. Cl.[3] G01S 13/00, 7/40

U.S. Cl. 434—2 17 Claims



1. A radar signal simulator comprising means for producing first and second signals defining the values of respective first and second angular co-ordinates together defining the direction of an imaginary object relative to a real or imaginary antenna system; a first store for storing different antenna gain-related values for different values of the first co-ordinate, the first signal being effective to read from the first store a first antenna gain-related value associated with the value of the first co-ordinate; a second store for storing different antenna gain-related values for different values of the second co-ordinate, the second signal being effective to read from the second store a second antenna gain-related value associated with the value of the second co-ordinate; and output circuitry adapted to receive the first and second antenna gain-related values and to give an output signal which represents a combined effect of these.

4,334,867

EARTH PHOTO GLOBE WITH OVERLAY AND MAGNIFICATION ASSEMBLY

Jon Friedman, 312 Prince St., Freeport, N.Y. 11520

Division of Ser. No. 27,937, Apr. 6, 1979, Pat. No. 4,276,561.

This application Mar. 10, 1980, Ser. No. 128,624

Int. Cl.[3] G09B 27/08

U.S. Cl. 434—145 2 Claims

1. A globe characterized in that the geographical indicia comprise LANDSAT or other remote sensing data reproduced on the globe sphere with a definition smaller than that resolvable by the unaided human eye, said indicia comprising quantized image dots each corresponding to an average value of plural adjacent or overlapped LANDSAT or other remote sensing pixels, together with a generally spherical "cloud layer" overlay surrounding said globe sphere, said overlay containing a representation of the cloud cover of the earth, portions of said overlay being transparent to permit viewing therethrough of said geographical indicia, and wherein:

said "cloud layer" overlay is rigid and moveable with respect to said globe sphere, together with an optical magnification assembly mounted to said overlay to permit more detailed inspection of said geographical indicia on said globe sphere, said assembly having a magnification sufficient to enable resolution by the human eye of the full definition of said reproduced sensing data, and wherein:

said cloud layer overlay comprises two interlocking hemispheres ,

said cloud layer overlay being arbitrarily positionable about said globe,

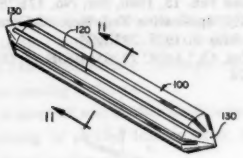
said optical magnification assembly comprising a magnifying eyepiece which is small compared to the overall size of said cloud layer overlay so as to permit viewing of said globe without magnification through the majority of said overlay,

said magnifying eyepiece being integrally supported by said overlay so as to be locatable at any position on said globe by correspondingly positioning said overlay.

4,334,868
CONSTRUCTIONAL KITS

Maxim D. Levinrad, 103 San Vito, George Ave., Fairvale, Johannesburg 2001, Transvaal, South Africa

Continuation-in-part of Ser. No. 11,629, Feb. 12, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,457
Int. Cl.³ A63H *33/08*
U.S. Cl. 434—172 11 Claims



1. A constructional kit, comprising:

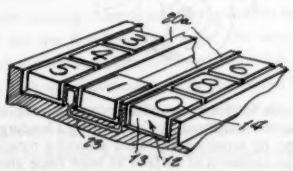
a plurality of elongated connectors, each having a substantially uniform cross-section defining a smooth exterior surface broken only by longitudinal grooves formed therein, each of the grooves running substantially the length of the connector, and each connector having conically shaped, tapered ends having smooth surfaces broken only by end portions of the grooves opening therein, the smooth exterior surfaces precluding direct attachment of the elongated connectors one to another; and,

a plurality of flat panels, each having smooth edges and substantially smooth surfaces, the smooth edges and substantially smooth exterior surfaces precluding direct attachment of the panels one to another, but facilitating attachment of the panels to the elongated connectors and of the elongated connectors to the panels, the edges of the panels being pressibly fitted into the grooves and held therein by frictional engagement, whereby self-supporting structures may be built by inter-engagement of the elongated connectors and the panels, the elongated connectors being attached only to the panels and the panels being attached only to the elongated connectors.

4,334,869
EDUCATIONAL MATHEMATICS GAME

Charles E. Wilcox, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed May 30, 1980, Ser. No. 154,904
Int. Cl.³ G09B *1/04, 19/02*
U.S. Cl. 434—208 3 Claims

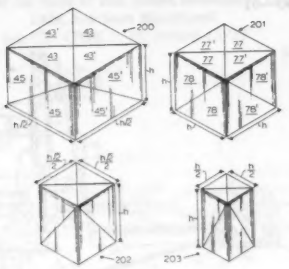


1. An educational game comprising in combination, a gameboard and a plurality of playing piece blocks movable on said gameboard, each block having a numerical digit thereon said gameboard including a plurality of bays defining between a plurality of parallel spaced apart partitions, said blocks being slidable into said bays so to form horizontal and parallel rows of said blocks, said numerical digits on said blocks thus defining a mathematical table, and means whereby said partitions are adjustable in thickness.

4,334,870
TETRAHEDRON BLOCKS CAPABLE OF ASSEMBLY INTO CUBES AND PYRAMIDS

Patricia A. Roane, 1100 Fulton St. #7, San Francisco, Calif. 94117

Division of Ser. No. 11,114, Feb. 12, 1979, Pat. No. 4,258,479. This application Oct. 24, 1980, Ser. No. 200,602
Int. Cl.³ A63H *33/04*
U.S. Cl. 434—211 13 Claims



1. A group of tetrahedron blocks, comprising:

a plurality of sets of twelve tetrahedron blocks each, each face of each block being a right triangle,

each set being capable of assembly as

(a) a rectangular parallelepiped with upper and lower square faces made up of twelve blocks, and, alternatively,

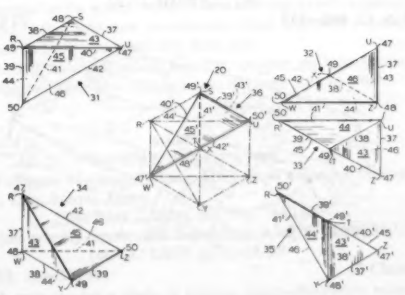
(b) a combination of a square-base pyramid made up of eight blocks, with four identical isosceles triangular faces and a tetrahedron made up of four blocks, with four identical isosceles triangular faces, all the parallelepipeds and pyramids having the same height,

the faces of the tetrahedrons all being mirror images of the faces of the pyramid of its set.

4,334,871
TETRAHEDRON BLOCKS CAPABLE OF ASSEMBLY INTO CUBES AND PYRAMIDS

Patricia A. Roane, 1100 Fulton St. #7, San Francisco, Calif. 94117

Division of Ser. No. 11,114, Feb. 12, 1979, Pat. No. 4,258,479. This application Nov. 28, 1980, Ser. No. 211,100
Int. Cl.³ A63H *33/04*
U.S. Cl. 434—211 17 Claims



1. A set of tetrahedrons that can be assembled to make a cube, consisting of:

6n tetrahedrons, where n is an integer divided into an even number of subsets groupable in pairs where

each tetrahedron in one of each said pair of subsets is symmetric to each tetrahedron in the other said pair of subsets.

4,334,872

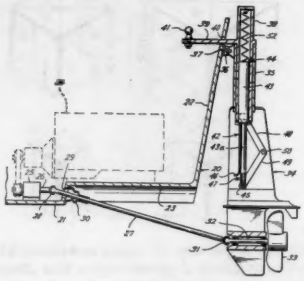
MOTOR BOAT

William D. Gaston, 2508 Pecos, Austin, Tex. 78703

Continuation-in-part of Ser. No. 840,721, Oct. 11, 1977, abandoned. This application Sep. 8, 1978, Ser. No. 939,134

Int. Cl.[3] B63H *5/12*

U.S. Cl. 440—61 45 Claims



1. A motor boat, comprising a boat hull having a transom, a motor mounted in the hull, a housing and a propeller having a shaft rotatably mounted in the housing, means supporting the housing from the hull and rearwardly of its transom, means extending sealably through a hole in the hull to connect the motor to the propeller shaft, including a drive shaft having a flexible joint near the hole which connects to the motor to permit the drive shaft to swing about a horizontal axis generally transverse to the length of the hull, and a universal joint at its opposite end which connects it to the propeller shaft, said supporting means including a first part mounted on the transom for pivoting about a horizontal axis transverse to the direction of travel of the hull, a second part connected to the propeller housing and so supported from the first part as to permit said housing to be rotated with respect to the hull about an axis which is fixed against lateral displacement and raised and lowered with respect to said first part generally along said axis of rotation, and steering means connectable to the second part and restrained for limited vertical movement with respect to said hull, whereby the boat may be steered by means of the propeller.

4,334,873

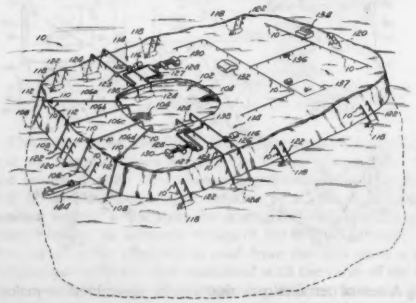
ICEBERG PROPULSION SYSTEM

Joseph A. Connell, P.O. Box 168, Harbor City, Calif. 90710

Filed Nov. 16, 1979, Ser. No. 95,070

Int. Cl.[3] B63H *23/32*

U.S. Cl. 440—113 27 Claims



1. A self-propelled iceberg, comprising:

first means for converting potential energy associated with said iceberg into kinetic energy at least a portion of said potential energy being gravitational energy; and

second means for utilizing said kinetic energy to propel said iceberg.

4,334,874

LAUNCHING SHEET FOR WINDSURFERS

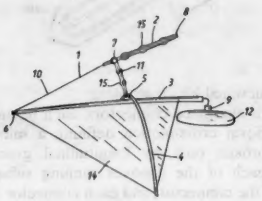
Ulrich Kador, Josef-Fischhaberstr.8e, 8130 Starnberg, Fed. Rep. of Germany

Filed Feb. 15, 1980, Ser. No. 121,781

Claims priority, application Fed. Rep. of Germany, Feb. 19, 1979, 2906348; May 9, 1979, 2918698

Int. Cl.[3] A63C *15/05;* B63B *15/00*

U.S. Cl. 441—74 13 Claims



1. In a windsurfer having a board, a mast, a wishbone-shaped boom for gripping the windsurfer and a sail, the improvement comprising a launching sheet comprising an elongated member having a first end extending from an attachement point at the front end of said wishbone-shaped boom and a second end extending from an attachment point on said mast above said wishbone-shaped boom.

4,334,875

PROCESS FOR FORMING A SLEEVE BY WINDING AND A DEVICE FOR EXECUTING THE METHOD

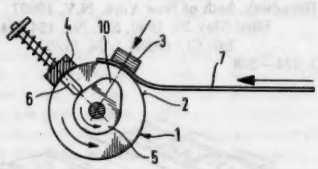
Eugen Eckert, Holm, Fed. Rep. of Germany, assignor to Maschinenfabrik Rissen GmbH, Hamburg and 4P Nicolaus Kempten GmbH, Kempten, both of, Fed. Rep. of Germany

Filed Apr. 14, 1980, Ser. No. 142,142

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1979, 2917304

Int. Cl.[3] B31C *1/00*

U.S. Cl. 493—303 5 Claims



1. A process for forming a sleeve from a flat blank, particularly rectangular cardboard blank, having a leading edge and a trailing edge, by winding the blank around a rotating mandrel having a circumferential surface at least once and utilizing a clamp to secure the leading edge of said blank against said mandrel and a presser member to apply force against said blank during said winding, comprising the steps of clamping the said leading edge of said blank against said circumferential surface of said mandrel; raising said presser member with respect to said mandrel for a limited time interval so that said clamp may pass beneath it; lowering said presser member so that stress is placed upon said blank while it is wound, said raising and lowering ocurring as often as is necessitated by rotations of the clamp; joining said leading edge and said trailing edge together to form a sleeve; and releasing said presser member and said clamp for removal of the sleeve.

4,334,876

PROCESS FOR PRODUCING LEATHER

William C. Beier, Short Hills, N.J., and James J. Hodder, Doylestown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 69,470, Aug. 24, 1979. This application Aug. 21, 1980, Ser. No. 180,175

The portion of the term of this patent subsequent to Feb. 9, 1999, has been disclaimed.

Int. Cl.³ C14C *3/06, 3/08*

U.S. Cl. 8—94.19 C 4 Claims

1. A multiple-stage tanning process for producing an improved tanned leather suitable for use for shoe soles, belts, straps, bags and cases, comprising the steps, carried out in a series of aqueous tanning baths, of:

(1) providing a piece of wet leather stock selected from the group consisting of pickled leather stock, bated leather stock, and limed leather stock;

(2) adjusting the pH of the leather stock provided in step (1) to obtain a pH of the leather stock in the range of 4.5–5.5;

(3) treating the leather stock from step (2), while establishing and maintaining the pH thereof at 4.5–5.5, with 1–50% by weight, based on the initial wet weight of the leather stock, of a first tanning composition comprising an aqueous dispersion or solution comprising 5–40% by weight of a dispersion or solution of a polymer polymerized from a monomer mixture comprising at least one member selected from a group consisting of acrylic acid, methacrylic acid, mixtures of acrylic acid and methacrylic acid, and mixtures of a major portion of at least one member selected from the group consisting of acrylic acid and methacrylic acid with a minor proportion of at least one member selected from the group consisting of alkyl esters of acrylic acid, alkyl esters of methacrylic acid, and partially sulfated unsaturated drying oils, until the leather stock is penetrated therewith;

(4) adjusting the pH of the leather stock from step (3) to 1.5–3.3 to exhaust the first tanning composition and to obtain an optimal pH for the subsequent second tanning treatment;

(5) treating the leather stock of step (4), while establishing and maintaining the pH thereof at 1–3.3, with 5.5–20% by weight, based on the initial wet weight of the leather stock, of a second tanning composition selected from a buffered aluminum sulfate tanning compound or a mixture of the buffered aluminum sulfate tanning compound and a zirconium tanning compound having 0–45% basicity calculated on the Schorlemmer scale, the amount of the buffered aluminum sulfate tanning compound or mixture thereof with the zirconium tanning compound being sufficient to provide an amount of aluminum or mixture of aluminum and zirconium, calculated as the oxide, of about 1.8–6.6% by weight, based on the initial wet weight of the leather stock, until the leather stock is tanned to the desired extent;

(6) neutralizing the tanned leather stock from step (5) to a pH of 3.5–5 by the addition to the tanning bath of an aqueous solution of a weak base; and

(7) washing the tanned leather stock from step (6) with water, optionally further treating the washed tanned leather stock with conventional adjuvants, and drying the tanned leather stock in conventional operations.

4,334,877

FABRIC TREATMENT COMPOSITIONS

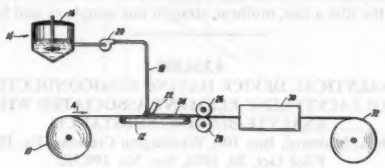
Razmic S. Gregorian, Aiken, and Chettoor G. Namboodri, North Augusta, both of S.C., assignors to United Merchants & Manufacturers Inc., New York, N.Y.

Continuation of Ser. No. 928,743, Jul. 27, 1978, Pat. No. 4,208,173, which is a continuation-in-part of Ser. No. 794,627, May 6, 1977, abandoned, which is a continuation of Ser. No. 584,389, Jun. 6, 1975, Pat. No. 4,118,526. This application Feb. 20, 1980, Ser. No. 122,862

The portion of the term of this patent subsequent to May 12, 1998, has been disclaimed.

Int. Cl.³ C09K *3/18;* D06M *13/32*

U.S. Cl. 8—477 14 Claims



1. In a foamable composition suitable for treating fabrics with a finishing agent comprising a fabric finishing agent in an amount effective to impart the properties of the finishing agent to a fabric, a foam stabilizer, and a liquid diluent; the improvement comprising about 0.01 to about 10 percent foam stabilizer and in an amount sufficient to form said composition into a stable foam having a blow ratio in the range from about 2:1 to 20:1, a foam density in the range from about 0.5 gm/cc to 0.05 gm/cc, and which is sufficiently stable to substantially retain its characteristics during application until a mechanical force is applied thereto.

4,334,878

INK JET INK COMPOSITION

Robert S. Cutler, Boulder, and Michael T. Moore, Longmont, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 5, 1981, Ser. No. 240,636

Int. Cl.³ C08L *25/08*

U.S. Cl. 524—88 8 Claims

1. A blue ink jet ink composition which is both waterfast and lightfast, and which consists essentially of an aqueous solution of a copolymer of styrene and acrylic acid of a molecular weight about 10,000, and in about a 2 to 1 ratio;

a volatile base capable of solubilizing said copolymer;

a blue dye in a wt. % range 1.75 to 2.5, said dye being compatible with said copolymer in that particles are not formed in the water, volatile base and copolymer solution, and in that said dye remains associated with said copolymer in the subsequent dry state; and

a second noncompatible, lightfast, copper phthalocyanine water-soluble blue dye in a wt. % range 2.25 to 3.0.

4,334,879

SAMPLE APPLICATOR

Ryo Fujimori, Hachiouji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 2, 1980, Ser. No. 146,182

Claims priority, application Japan, May 4, 1979, 54/59754[U]

Int. Cl.³ G01N *1/10, 27/26*

U.S. Cl. 23—230 R 1 Claim

1. A new use for a blade of porous, liquid-absorptive material having a straight edge protruding at one end of a holder in which the blade of porous material is mounted,

said new use comprising:

dipping the protruding blade edge into a liquid that is to be

subjected to electrophoresis, in order to absorb a quantity of said liquid therein; and

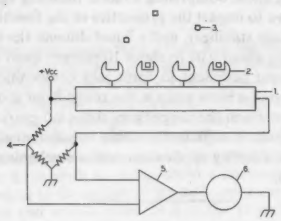
pushing the protruding blade edge against an electrically-energizable film sufficiently to express from the blade onto the film a fine, uniform, straight line sample of said liquid.

4,334,880

ANALYTICAL DEVICE HAVING SEMICONDUCTIVE POLYACETYLENE ELEMENT ASSOCIATED WITH ANALYTE-BINDING SUBSTANCE

Mark K. Malmros, Box 106, Washington Crossing, Pa. 18977

Filed Oct. 20, 1980, Ser. No. 198,782
Int. Cl.³ G01N *27/12, 33/54*
U.S. Cl. 23—230 B **12 Claims**



1. A device for determining the concentration of an analyte in a medium, comprising:

(a) sensor means including an element whose resistance varies in response to the presence of an analyte, where said element includes a binding substance which has specific affinity for the analyte,

(b) means including spaced-apart electrodes contacting the element for measuring the resistance of the element,

(c) means for bringing the medium in contact with the sensor, wherein the improvement comprises: said element being constructed of polyacetylene.

4,334,881

METHOD AND APPARATUS FOR AUTOMATIC END-POINT DETECTION IN TRIPOLYPHOSPHATE SEQUESTRATION OF HARDNESS

Raymond L. Reinert, Louisville, and Charles D. Kaufman, Crestwood, both of Ky., assignors to General Electric Company, Louisville, Ky.

Filed Jan. 9, 1981, Ser. No. 223,661
Int. Cl.³ G01N *33/18;* B08B *3/10*
U.S. Cl. 23—230 A **24 Claims**

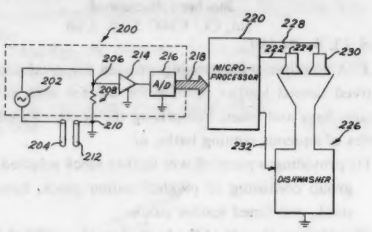
1. A sequestration method for sequestering the calcium and magnesium hardness elements in a wash water solution containing such hardness, comprising the steps of:

(a) adding sodium tripolyphosphate to said wash water solution at a preselected rate slow enough to permit the determination of the effect upon the conductivity of said wash water solution of incremental amounts of said sodium tripolyphosphate;

(b) periodically sensing, at time intervals which are constant relative to the rate of addition of said sodium tripolyphosphate, the electrical conductivity of said wash water solution to obtain thereby a plurality of conductivity values;

(c) determining a plurality of rates of change in said conductivity from said plurality of conductivity values;

(d) detecting from said plurality of rates of change the substantially maximum rate of change of said conductivity



values which occurs approximately when a 1:1 molar ratio of hardness elements to sodium tripolyphosphate is reached; and

(e) terminating the addition of sodium tripolyphosphate to said wash water solution when said substantially maximum rate of change of said conductivity values is detected.

4,334,882

DETERMINATION OF PYRITE AND SIDERITE CONTENT OF FORMATION DEPOSITS

Joseph T. Edwards, Grand Prairie, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Apr. 1, 1981, Ser. No. 249,778
Int. Cl.³ G01J *3/30;* G01N *3/24*
U.S. Cl. 23—230 R **3 Claims**

1. A method for determining the concentration of pyrite in a sample comprising the steps of:

placing said sample in a hydrochloric acid solution;

dissolving a portion of said sample in said hydrochloric acid solution;

removing said sample from said hydrochloric acid solution;

placing said sample in a nitric acid solution;

dissolving a second portion of said sample in said nitric acid solution;

removing said sample from said nitric acid solution; and

performing an inductively coupled plasma spectrometer analysis of said nitric acid solution and said hydrochloric acid solution to determine the concentration of iron in each solution.

4,334,883

ISOTOPE SEPARATION BY LASER MEANS

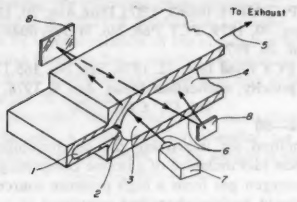
C. Paul Robinson; Reed J. Jensen; Theodore P. Cotter; Norman R. Greiner, and Keith Boyer, all of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 270,800, Jul. 7, 1972, abandoned. This application Aug. 14, 1973, Ser. No. 387,859
Int. Cl.³ B01D *59/00*
U.S. Cl. 23—293 R **1 Claim**

1. A method of achieving spectrum simplification of UF_6 while retaining sufficient vapor pressure to allow gas-phase, laser-induced photochemical reaction of said UF_6 to occur with a reasonable optical path length which comprises:

(a) obtaining said UF_6 in a gaseous state with a carrier gas admixed therewith to form a gaseous mixture; and,

(b) adiabatically expanding said gaseous mixture into a region of uniform pressure by supersonically flowing said



gaseous mixture through a convergent-divergent slit nozzle into a constant area duct.

4,334,884

PROCESS FOR THE CONTINUOUS PREPARATION OF PHOTOGRAPHIC EMULSIONS

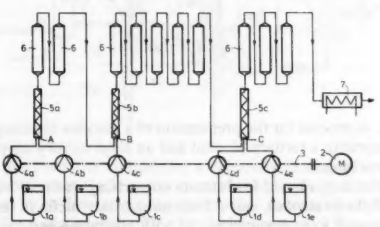
Werner Wilke, Starnberg; Hans Gref, Cologne, and Hans Frenken, Odenthal-Osenau, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 967,778, Dec. 8, 1978, Pat. No. 4,241,023. This application Aug. 14, 1980, Ser. No. 178,145

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1977, 2755166

Int. Cl.³ B01J *13/00*

U.S. Cl. 23—293 R **3 Claims**



1. A process for the continuous preparation of photographic emulsion consisting of halide solution, gelatin and silver salt in which a stream flows through a pipe system having successively arranged a pumping volume, a mixing section volume, and a ripening section volume and connecting conduit volumes,

said mixing section volume and connecting conduit volumes being relatively smaller than the ripening section volume, comprising the steps of

piston metering the emulsions consisting of halide, silver salt and gelatin through the pumping section volume in unison, and selecting the flow characteristics of the ripening section volume relative to the operating characteristics of the piston metering pumps and the kinematic viscosity of the streams of emulsion so that the delivery of the stream in the ripening sections always occurs in coordination with the starting flow in the metering pumps, and has a rectangular velocity profile,

and the flow from the mixing section volume to the ripening section volume is slight relative to the flow in the ripening section volume whereby the flow in the ripening section is isolated from the mixing section,

and the influence on flow in the ripening section volume from the mixing section volume and connecting conduits volumes is minimized.

4,334,885

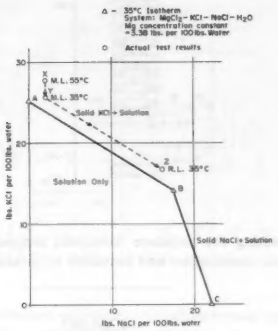
PRODUCTION OF POTASSIUM CHLORIDE FROM LANGBEINITE

Marvin H. Harrison, and William B. Dancy, both of Carlsbad, N. Mex., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Oct. 20, 1980, Ser. No. 198,391

Int. Cl.³ C01D *3/08, 3/24*

U.S. Cl. 23—300 **15 Claims**



1. In an improved process for obtaining potassium sulfate from potassium bearing ores in which a primary potassium bearing ore refining process includes the step of adding potassium chloride to langbeinite ($K_2SO_4.2Mg-SO4$) to form a reaction mixture which produces potassium sulfate salt crystals and a mother liquor containing dissolved chloride and sulfate salts of potassium and magnesium which remains after the removal of potassium sulfate salt crystals therefrom, the improvement comprising adding sodium chloride to said mother liquor up to an amount just below the saturation point for sodium chloride in said mother liquor to cause precipitation of potassium chloride crystals from said mother liquor, and thereafter separating the potassium chloride crystals from said mother liquor leaving an end liquor containing salts of magnesium, potassium and sodium.

4,334,886

METHOD OF MANUFACTURING TABLE SALT

Katsuhiko Tani, and Tamio Sakamoto, both of Aza-Mabuse, Nomasu, Oshima-cho, Tokyo, 100-01, Japan

PCT No. PCT/JP79/00044, § 371 Date Oct. 24, 1979, § 102(e) Date Oct. 24, 1979, PCT Pub. No. WO79/00713, PCT Pub. Date Oct. 4, 1979

PCT Filed Feb. 23, 1979, Ser. No. 187,839

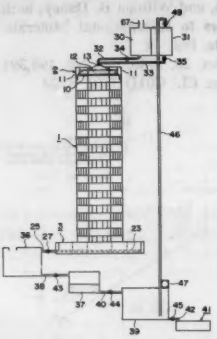
Claims priority, application Japan, Feb. 24, 1978, 53-20563

Int. Cl.³ C01D *3/06*

U.S. Cl. 23—303 **3 Claims**

1. A method of manufacturing table salt comprising a sprinkling system providing sea water to a hollow tower built with many ventilation openings and made of liquid permeable materials, allowing said sea water to infiltrate and flow down from the upper part to the bottom part of the said tower, and producing primary salt water of about 5°–8° Be' having low solubility components in an evaporation pool installed at the bottom part of the said tower, adding sufficient raw table salt to said primary salt water to supersaturate said primary salt water and cause said low solubility components in said primary salt water to separate and precipitate leaving residual salt water,

repeating said infiltration from the top to the bottom of the tower until said residual salt water reaches 10°–15° Bé, and



evaporating the moisture from said secondary salt water at ambient temperature and humidity to produce table salt.

4,334,887

METHOD FOR FLOCCULATING METAL OXIDE PARTICLES IN AN ORGANIC MEDIUM

Dieter Frank, Naperville, and Lincoln D. Metcalfe, La Grange, both of Ill., assignors to Akzona Incorporated, Asheville, N.C.

Continuation of Ser. No. 118,270, Feb. 5, 1980, abandoned. This application Jan. 26, 1981, Ser. No. 228,524

Int. Cl.³ C05B *19/00*; C22B *1/14*

U.S. Cl. 23—313 R **11 Claims**

1. A method for flocculating metal oxide particles in an organic medium comprising incorporating into said medium an effective amount of 1-(N-morpholino)-2-amino-2-methylpropane.

4,334,888

COAL DESULFURIZATION

William H. Corcoran, San Gabriel, Calif.; Nicholas P. Vasilakos, Austin, Tex., and Daniel D. Lawson, Arcadia, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Apr. 3, 1981, Ser. No. 250,646

Int. Cl.³ C10G *1/00*; C10L *9/12*

U.S. Cl. 44—1 SR **16 Claims**

1. A method for enhancing the mass transfer of reactive agents into and reaction products out of coal comprising the steps of:

suspending particulate coal in a solvent media having a solubility parameter between 10 to 20 Hildebrand units, said coal having a solubility parameter spectrum exhibiting one or more maximum peaks and the solubility parameter of said media being within 1 Hildebrand unit of one of said peaks.

12. A method of desulfurizing particulate coal having a solubility parameter spectrum exhibiting a first lower maximum peak and a second higher maximum peak comprising the steps of:

suspending the coal in a mass transfer and solvent media having a solubility parameter between 10 and 20 Hildebrand units and within 1 Hildebrand unit on either side of said first maximum peak;

oxidizing the sulfur in said coal by passing an oxidizing gas through said slurry at a temperature below about 150° C. to form water soluble sulfur compounds; and

separating said oxidized coal from the water soluble sulfur compounds and from the mass transfer and solvent media.

4,334,889

METHOD FOR IMPROVING COMBUSTIBILITY OF LIQUID FUEL

Toshiaki Takabayashi, 4-2, Kugayama 2-chome, Suginami-ku, Tokyo, Japan

PCT No. PCT/JP78/00063, § 371 Date Aug. 30, 1979, § 102(e) Date Aug. 30, 1979, PCT Pub. No. WO79/00487, PCT Pub. Date Jul. 26, 1979

PCT Filed Dec. 22, 1978, Ser. No. 165,121

Claims priority, application Japan, Jan. 9, 1978, 53-525

Int. Cl.³ C10L *1/00*

U.S. Cl. 44—50 **8 Claims**

1. A method for improving the combustibility of liquid hydrocarbon fuel inclusive of gasoline comprising the step of injecting oxygen gas from a high pressure source of oxygen into the liquid hydrocarbon fuel contained in a vessel outwardly surrounded by permanent magnets of at least 700 gauss magnetic flux density.

4,334,890

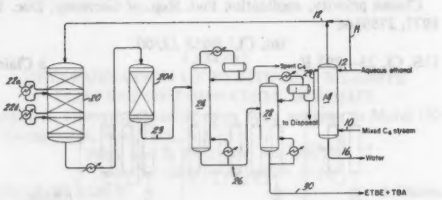
PROCESS FOR GASOLINE BLENDING STOCKS

Nand K. Kochar, Bronx, N.Y., and Richard L. Marcell, Bergenfield, N.J., assignors to The Halcon SD Group, Inc., New York, N.Y.

Filed Feb. 3, 1981, Ser. No. 231,205

Int. Cl.³ C10L *1/02*

U.S. Cl. 44—53 **5 Claims**



1. A process for the preparation of a gasoline blending stock comprising a tertiary alcohol and an alkyl tertiary alkyl ether comprising:

(a) reacting a liquid feed stream comprising water, at least one aliphatic alcohol, and at least one tertiary olefin in the presence of a catalyst capable of both etheration and hydration and simultaneously producing a mixture containing the corresponding tertiary alcohols and alkyl tertiary alkyl ethers;

(b) separating the tertiary alcohols and alkyl tertiary alkyl ethers from the mixture produced in (a) to produce a gasoline blending stock.

4,334,891

MODIFICATION OF LIQUID HYDROCARBONS

Herbert Brooks, Twyford, and Frederick A. Waite, Farnham Common, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 146,411, May 5, 1980, Pat. No. 4,292,045. This application Jun. 5, 1981, Ser. No. 270,813

Claims priority, application United Kingdom, May 10, 1979, 7916311

Int. Cl.³ C10L *1/22*

U.S. Cl. 44—62 **9 Claims**

1. A composition suitable for addition to a liquid aliphatic hydrocarbon fuel in order to impart to the fuel a resistance towards mist formation when the fuel is subject to conditions of shock, the composition comprising (A) a copolymer of a mixture of monomers consisting of (i) at least 75% by weight of tert-butylstyrene as one monomer, (ii) from 1% to 24% by weight of a second monomer selected from the acrylic and methacrylic esters of aliphatic monohydric alcohols containing

from 1 to 4 carbon atoms, 2-ethoxyethyl methacrylate, acrylonitrile, vinyl acetate, styrene and vinyltoluene, and (iii) from 1% to 10% by weight of methacrylic acid as a third monomer, the aggregate of monomers (i), (ii) and (iii) being 100% and the copolymer having the following characteristics:

(a) it is soluble in AVTUR 50 aviation kerosene;

(b) a 0.3% by weight solution of the copolymer in AVTUR 50 aviation kerosene has a relative viscosity in the range 1.3 to 2.6 and a differential orifice flow rate in the range 3 to 7 ccs per 30 seconds,

and (B) a hydroxylic liquid which is a non-solvent for the copolymer or only a weak swellant therefor but which is miscible to the extent of at least 1% by weight with the fuel.

4,334,892

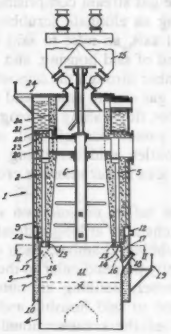
GAS PRODUCER APPARATUS INCLUDING A WATER JACKET

Gerald S. V. Livemore, Parkmore, South Africa, assignor to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Jul. 31, 1980, Ser. No. 174,283

Int. Cl.³ C10J *3/76*

U.S. Cl. 48—76 **6 Claims**



1. A gas producer comprising a vertically extending water jacket enveloping the lower portion of the gas producer characterized by an inwardly projecting collar containing coolant spaced from and interior of the vertical inner wall of the upper extremity of the water jacket, and a plurality of apertures extending through the collar, and a steam outlet positioned between the upper extremity of the water jacket and the collar, wherein the collar assists in supporting the refractory material of the wall of the gas producer and each aperture is located above a surface of the fire bed of the producer and constitutes an inlet to a flue extending inside said refractory wall for directing product gas upwardly through the refractory so that water can be maintained within the water jacket at a level between the collar and the steam outlet to protect by the refractory the portion of the water jacket not cooled by water.

4,334,893

RECOVERY OF ALKALI METAL CATALYST CONSTITUENTS WITH SULFUROUS ACID

Robert J. Lang, Baytown, Tex., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

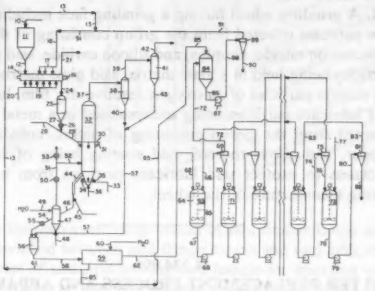
Continuation of Ser. No. 52,055, Jun. 25, 1979, abandoned. This application Nov. 24, 1980, Ser. No. 210,089

Int. Cl.³ C10J *3/06, 3/54*

U.S. Cl. 48—202 **11 Claims**

1. In a process for the catalytic steam gasification of coal in the presence of a potassium-containing catalyst at a temperature between about 1100° F. and about 1400° F. wherein particles containing potassium residues are produced, the improvement which comprises:

(a) treating said particles containing said potassium residues with a solution of sulfurous acid thereby converting water-insoluble potassium constituents in said residues into water-soluble potassium sulfites and bisulfites and producing an aqueous solution containing water-soluble potassium constituents including said potassium sulfites and bisulfites; and



(b) using said potassium sulfites and bisulfites in said aqueous solution in said catalytic steam gasification process as at least a portion of the potassium constituents comprising said potassium-containing catalyst.

4,334,894

PROCESS FOR PRODUCING SYNTHESIS GAS FROM WOOD

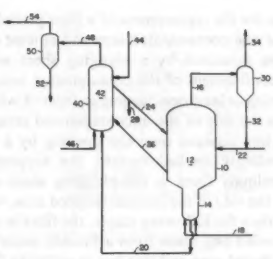
Michael S. Lancet, and George P. Curran, both of Pittsburgh, Pa., assignors to Conoco Inc., Stamford, Conn.

Continuation-in-part of Ser. No. 20,005, Mar. 12, 1979, Pat. No. 4,231,760. This application Apr. 14, 1980, Ser. No. 139,915

The portion of the term of this patent subsequent to Nov. 4, 1997, has been disclaimed.

Int. Cl.³ C10J *3/12, 3/54*

U.S. Cl. 48—209 **4 Claims**



1. In a process for producing synthesis gas by reacting a solid carbonaceous fuel with steam in the presence of a carbon dioxide acceptor to produce a synthesis gas rich in hydrogen with at least a major portion of the carbon dioxide so produced being reacted with said carbon dioxide acceptor to produce calcium carbonate and to provide sufficient heat to maintain a desired reaction temperature, an improvement comprising; the use of finely-divided wood as said solid carbonaceous fuel and using as the CO_2 acceptor, a CO_2 acceptor consisting essentially of calcium oxide supported in a refractory carrier matrix, said carrier having the general formula $Ca_5(SiO_4)_2CO_3$ and wherein said calcium oxide is present in an effective amount up to about 50 weight percent based on the weight of said synthetic CO_2 acceptor.

4,334,895

GLASS BONDED ABRASIVE TOOL CONTAINING METAL CLAD GRAPHITE

Paul P. Keat, Shrewsbury, Mass., assignor to Norton Company, Worcester, Mass.

Filed May 29, 1980, Ser. No. 154,356
Int. Cl.³ B24D 3/02
U.S. Cl. 51—309 1 Claim

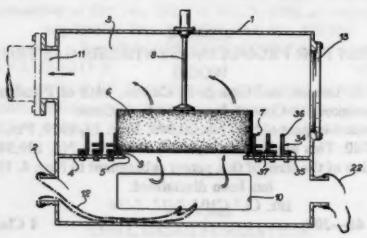
1. A grinding wheel having a grinding face including abrasive particles selected from the group consisting of diamond, cubic boron nitride, alumina, and silicon carbide, said abrasive particles being held in a glass matrix, said glass matrix including therein particles of an oxygen reactive dry film, lubricant, said lubricant particles being encapsulated in a metal coating selected from the group consisting of nickel, cobalt, silver, copper, and alloys thereof, said coating being of sufficient thickness to protect said lubricant particles from oxidation during manufacture of the wheel.

4,334,896

FILTER REPLACEMENT PROCESS AND APPARATUS

Georges Müller, Dijon, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Jul. 27, 1981, Ser. No. 287,359
Claims priority, application France, Aug. 6, 1980, 80 17376
Int. Cl.³ B01D 46/00
U.S. Cl. 55—96 6 Claims



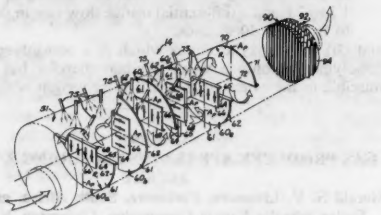
1. A process for the replacement of a filter placed in a vessel having at least one contaminated area and at least one uncontaminated area separated by a plugging sheet without any break in the confinement of the contaminated area, the plugging sheet having at least one opening in front of which is fixed the filter from the side of the uncontaminated area, said filter being guided into position over the opening by a supporting frame and sealingly applied thereto, the supporting frame being itself sealingly fixed to the plugging sheet around the opening from the side of the uncontaminated area, wherein the process comprises the following stages: the filter is surrounded by a tightly sealed bag made from a flexible material as from the uncontaminated area and this bag is sealingly fixed to the outer periphery of the supporting frame, the filter is removed from the supporting frame and placed on the bottom of the tightly sealed bag, the bag is welded at two points and cut between the two welds so as to obtain on the one hand a hermetically sealed bag containing the filter and on the other a tight diaphragm separating the contaminated and uncontaminated areas of the vessel, the filter is then removed from the vessel as from the uncontaminated area and a supplementary supporting frame is sealingly fixed to the supporting frame, a replacement filter is fitted from the uncontaminated area of the vessel and being sealingly applied to the supplementary supporting frame which will serve the same function as the first-mentioned supporting frame during the next replacement and the tight diaphragm is removed from the contaminated area of the vessel.

4,334,897

GAS SCRUBBING APPARATUS

Jack D. Brady, Fayetteville, and Kenny M. Graves, Jonesboro, both of Ga., assignors to Andersen 2000, Inc., Atlanta, Ga.

Filed Feb. 24, 1981, Ser. No. 237,292
Int. Cl.³ B01D 47/00
U.S. Cl. 55—257 PV 9 Claims



1. Gas scrubbing apparatus for removing sulfur dioxide from a gas stream with a cleaning liquid capable of absorbing the sulfur dioxide in the gas stream comprising:

a housing defining an elongate scrubbing chamber therein along a central axis, an inlet to said scrubbing chamber through one end of said housing, and an outlet from said scrubbing chamber through the opposite end of said housing so that the gas stream enters said scrubbing chamber through said inlet, flows along the length of said scrubbing chamber and passes out of said scrubbing chamber through said outlet; said scrubbing chamber having a cross-sectional area larger than the cross-sectional area of said inlet;

a plurality of first baffles mounted on said housing within said scrubbing chamber at longitudinally spaced positions along said scrubbing chamber, each of said first baffles oriented generally perpendicular to the central axis of said scrubbing chamber, defining an outer peripheral edge thereon attached to said housing and extending around about one-half of the cross-sectional periphery of said scrubbing chamber, defining a generally straight inner edge thereon extending between opposite ends of said outer peripheral edge so that said inner edge extends through the middle of said scrubbing chamber, and having a size such that each of said first baffles blocks about fifty percent of the transverse cross-sectional area of said scrubbing chamber, each of said first baffles being rotated in a first direction about said chamber central axis ninety degrees with respect to the next adjacent first baffle upstream thereof so that said inner edge on each of said first baffles is oriented perpendicular to said inner edges of said first baffles adjacent thereto whereby each of said first baffles rotates the gas stream flowing thereby approximately ninety degrees and so that all of said first baffles rotate the gas stream in the same direction about said central axis to effectively rotate the gas stream about three hundred sixty degrees about said central axis as said gas stream flows past said first baffles;

a second baffle mounted in said housing downstream of the downstreammost of said first baffles; said second baffle oriented generally perpendicular to the central axis of said scrubbing chamber, defining an outer peripheral edge thereon attached to said housing and extending around about one-half of the cross-sectional periphery of said scrubbing chamber, defining a generally straight inner edge thereon extending between opposite ends of said outer peripheral edge so that said inner edge extends through the middle of said scrubbing chamber, and having a size such that said second baffle blocks about fifty percent of the transverse cross-sectional area of said scrubbing chamber; and said second baffle being rotated about said chamber central axis about one hundred eighty degrees with respect to the downstreammost of said first

baffles so that said second baffle arrests rotation of the gas stream about said central axis; and

spray means for directing sprays of the cleaning liquid between said first baffles for contacting the gas stream with the cleaning liquid to absorb the sulfur dioxide from the gas stream.

4,334,898

DEVICE FOR THE PRODUCTION OF SOLID ALUMINUM CHLORIDE

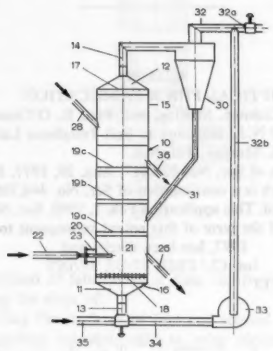
Gerhard Zhuber-Okrog; Ernst Kowolik, both of Rheinfelden, Fed. Rep. of Germany; Hanspeter Alder, Flurlingen, and Hans P. Mueller, Magden, both of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Feb. 4, 1980, Ser. No. 117,849

Claims priority, application Switzerland, Feb. 16, 1979, 1510/79

Int. Cl.³ B01D *59/08, 7/02;* **F16K** *15/04*

U.S. Cl. 55—269 **20 Claims**



1. Device for producing solid aluminum chloride from gas containing gaseous aluminum chloride comprising a fluidized bed condenser having an inlet pipe for the supply of carrier gas and an outlet pipe for waste or residual gas, said condenser including between the inlet and outlet pipes, a distributor plate with openings, at least one cooling facility spaced from said distributor plate between the distributor plate and the outlet pipe, an inlet facility communicating with said fluidized bed condenser for the supply of gas containing gaseous aluminum chloride and an outlet facility communicating with said fluidized bed condenser for removing solid aluminum chloride, wherein openings in the distributor plate are in the form of nozzles which are provided with valves constructed and arranged to close said openings when the carrier gas supply is off, and wherein said valves include means for removing material encrusting the openings.

4,334,899

SNAP FILTER GRILL AND ASSEMBLY

Paul A. McConnell, 806 Tabor, Houston, Tex. 77009

Filed Apr. 9, 1981, Ser. No. 252,373

Int. Cl.³ B01D *50/00*

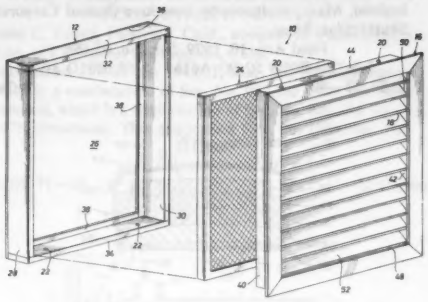
U.S. Cl. 55—321 **18 Claims**

5. A filter assembly, comprising:

a fixable frame member defining a compartment having a flange means therein;

a louvered grill detachably positioned in said compartment, said grill comprising a rectangular grill frame bounding a louver structure secured to said grill frame;

lock means associated with said fixable frame and said grill interiorly of the former to retain said grill in position in said fixable frame, said lock means being self-releasing in response to axial movement of said grill relative to said fixable frame; and



a filter medium removably seated in said fixable frame and sandwiched between said flange means and said grill, the louvers of said grill serving as a handle for insertion and withdrawal of said grill relative to said fixable frame.

4,334,900

FILTER ELEMENTS ARRANGED IN WASTE TANKS FOR SEPARATING SUBSTANCES WHICH ARE HARMFUL TO THE HEALTH FROM FLOWING AIR IN CONNECTION WITH NUCLEAR INSTALLATIONS

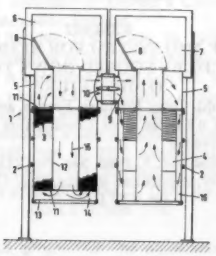
Gerhard-Max Neumann, Berlin, Fed. Rep. of Germany, assignor to Delbag-Luftfilter GmbH, Fed. Rep. of Germany

Filed Jan. 12, 1981, Ser. No. 224,636

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1980, 3001289

Int. Cl.³ B01D *46/14*

U.S. Cl. 55—350 **12 Claims**

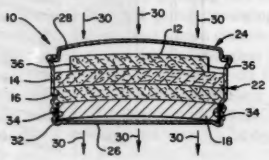


1. Filter elements with changing devices and contamination protection, installed in waste tanks and serving to separate substances which are prejudicial to the health from the breathing or process air of ventilation systems used in nuclear installations, wherein a filtration plant comprises two series-arranged waste tanks within each series a coarse material filter and a fine material filter interconnected by a detachable cover constructed for air guidance purposes by means of a lockable, air-carrying pipe connecting piece and whose projecting central pipes closable by means of flaps for carrying the supply and spent air respectively are in each series fixed in stationary manner to a superimposed, inclined, juxtaposed air duct partitioned for dustladen and clear air respectively with lateral connections.

4,334,901
RESPIRATOR CARTRIDGE

Adolfo V. Ayes, Hartford, Conn., and John A. Jones, Wilbraham, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Aug. 10, 1979, Ser. No. 65,656
Int. Cl.³ B01D *50/00;* **A61M** *15/08;* **B01D** *39/02*
U.S. Cl. 55—487 **8 Claims**



1. A respirator cartridge for protection against aerosols comprising:

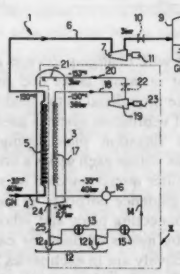
a main supporting shell having an inner wall of given diameter and spaced perforated bottom and cover portions;

a succession of filter components within said shell between said bottom and cover portions, at least one of which affords final filtering of air containing an aerosol passing through said shell, said one final filtering component being of substantially the same diametral dimension as said inner wall of said shell and disposed adjacent said perforations in one of said cover and bottom portions, remaining filter components constituting prefilters of which one is of appreciably smaller diametral dimension than said given diameter of said shell and disposed centrally within said shell adjacent perforations in the other of said cover and bottom portions, said one prefilter component thereby doming said succession of filter components with its edge and surrounding surface portions of the next of said succession of components immediately exposed to said aerosol containing air entering said shell through said perforations for the purpose of providing increased area of distribution of cartridge aerosol loading without increasing cartridge shell diameter whereby resistance to inhalation (airflow) is enhanced.

4,334,902
METHOD OF AND SYSTEM FOR REFRIGERATING A FLUID TO BE COOLED DOWN TO A LOW TEMPERATURE

Henri Paradowski, Cergy Pontoise, France, assignor to Compagnie Francaise d'Etudes et de Construction "Technip", Paris La Defense, France

Filed Dec. 4, 1980, Ser. No. 213,164
Claims priority, application France, Dec. 12, 1979, 79 30490
Int. Cl.³ F25J *1/02*
U.S. Cl. 62—9 **14 Claims**

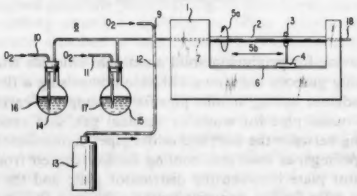


1. A method of refrigerating at least one fluid to be cooled down to a low temperature, in particular lower than −30° C., through heat exchange with at least one refrigerating fluid, each refrigerating fluid consisting of a mixture of several different components substances evolving according to a closed-loop cooling cycle while undergoing successively therein: at least one compression in the gaseous state, at least one precooling with at least partial high pressure condensation, at least one self-refrigeration with sub-cooling of at least one liquid fraction through heat exchange in counter-current relationship with the low pressure vapor originating from at least the same sub-cooled liquid fraction of said same refrigerating fluid, at least one expansion of at least said same low pressure fraction and at least one conversion of said vapor which is recompressed thereafter, wherein the improvement consists in the step of reducing, for a same amount of treated products, the power absorbed by said compression by performing at least one aforesaid expansion dynamically so as to produce an outer mechanical work.

4,334,903
OPTICAL FIBER FABRICATION

John B. MacChesney, Stirling, and Paul B. O'Connor, Plainfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 828,617, Aug. 29, 1977, Pat. No. 4,217,027, which is a continuation of Ser. No. 444,705, Feb. 22, 1974, abandoned. This application Feb. 1, 1980, Ser. No. 117,522
The portion of the term of this patent subsequent to Aug. 12, 1997, has been disclaimed.
Int. Cl.³ C03B *37/07, 37/075*
U.S. Cl. 65—3.12 **8 Claims**



1. A process for fabrication of an optical fiber transmission line comprising a core section and a cladding, wherein the cladding has an index of refraction of a value lower than the maximum index of the core for energy of the wavelength to be transmitted comprising:

introducing a moving stream of a vapor mixture including at least one compound glass-forming precursor together with an oxidizing medium into a tube while heating the tube so as to react the said mixture and produce a glassy deposit on the inner surface of the tube,

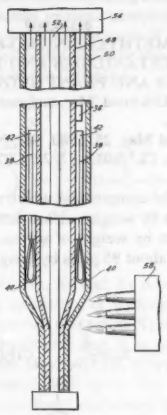
characterized in that the heating of tube and contents are by a moving hot zone produced by a correspondingly moving heat source external to the tube, and in that temperature within the hot zone, composition of the vapor mixture, and rate of introduction of the vapor mixture are maintained at values such that at least a part of the reaction takes place within the gaseous mixture at a position spaced from the inner walls of the said tube thereby producing a suspension of oxidic reaction product particulate material, which deposits on the inner surface of the tube and in that said particulate material is consolidated to produce said glassy deposit on the inner surface of the tube.

4,334,904

GLASS CAPTIVATED HEATING UNIT FOR STILL OR THE LIKE AND METHOD OF FABRICATING SAME

Richard L. Apothaker, Northfield; James Reed, Newfield; Carmen L. Croce, Vineland, and Frederick B. Wagner, III, Elmer, all of N.J., assignors to Kontes Glass Company, Vineland, N.J.

Filed Mar. 6, 1981, Ser. No. 241,055
Int. Cl.³ C03C 27/00
U.S. Cl. 65—36 16 Claims



1. A method of fabricating a glass captivated heating unit comprising the steps of:

(a) aligning the surfaces of first and second glass layers in face-to-face relation, with a wire element interposed therebetween, to form an assembly;

(b) heating said assembly to a temperature sufficient to cause the glass to become workable and to expand the portion of the element from an unexpanded condition to an expanded condition;

(c) joining and fusing the glass surfaces, around the expanded element portion, to form a body with a channel therein, defined by the contours of the expanded element; and

(d) causing the element to return to its unexpanded condition, resulting in a space within the body, between the channel walls and the element.

4,334,905

AGROCHEMICAL AGENTS AND THEIR USE

Kuno Wagner; Johannes Niggemann, both of Leverkusen; Kurt Findeisen, Odenthal, and Hans Scheinpflug, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 11,541, Feb. 12, 1979, Pat. No. 4,251,255. This application Sep. 22, 1980, Ser. No. 189,261
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1978, 2806097
Int. Cl.³ C05C 11/00
U.S. Cl. 71—27 5 Claims

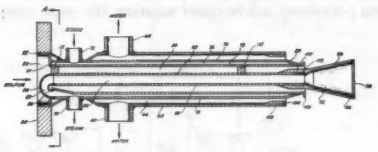
5. A method of improving soil comprising applying to the soil a composition comprising an azulmic acid stabilized by condensation with a carbonyl compound.

4,334,906

SLOW RELEASE SOIL AMENDMENT AND MICRONUTRIENT SOURCE

Donald C. Young, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Continuation of Ser. No. 134,021, Mar. 25, 1980, abandoned, which is a continuation of Ser. No. 962,165, Nov. 20, 1978, abandoned, which is a continuation of Ser. No. 569,484, Apr. 18, 1975, abandoned. This application Nov. 28, 1980, Ser. No. 211,205
Int. Cl.³ C05D 11/00
U.S. Cl. 71—33 12 Claims



1. A combination porous particulate soil amendment and micronutrient source comprising porous sulfur particles characterized by a bulk density of about 1.9 grams per cc or less, an open pore volume of at least about 0.04 cc per gram and an internal surface area of at least about 20 cm^2 per gram, and containing within said particles a dispersed agronomic amount of one or more micronutrient elements.

4,334,907

PHOSPHORIC ACID AMMONIATION PROCESS TO PRODUCE LIQUID FERTILIZERS

John D. Ellis, Upland, Calif.; George Crichton, Guadalajara, N. Mex.; Millard C. Godwin, and George C. Morris, both of Lakeland, Fla., assignors to Leather's Chemical Company, Limited, Yeadon, Leeds, England

Continuation of Ser. No. 11,973, Feb. 14, 1979, abandoned, which is a continuation of Ser. No. 475,956, Jun. 3, 1974, abandoned, which is a continuation of Ser. No. 384,192, Jul. 31, 1973, abandoned, which is a continuation of Ser. No. 117,152, Feb. 19, 1971, abandoned, which is a division of Ser. No. 853,683, Aug. 28, 1969, abandoned, which is a continuation-in-part of Ser. No. 684,348, Nov. 20, 1967, abandoned, and a continuation-in-part of Ser. No. 785,321, Dec. 19, 1968, abandoned. This application Jan. 7, 1980, Ser. No. 110,152
Int. Cl.³ C05B 7/00
U.S. Cl. 71—34 20 Claims

1. A continuous process for the manufacture of a liquid ammonium polyphosphate fertilizer, by a rapid ammoniation which minimizes loss of polyphosphates, from water, ammonia, and a phosphoric acid selected from the group consisting of orthophosphoric acid, polyphosphoric acid and mixtures thereof, said process comprising the steps:

(a) forming, in a reaction zone in a reaction vessel, an entrained co-current stream reaction mass comprising water, ammonia and phosphoric acid, said water comprising water present in a phosphoric acid solution or added water;

(b) permitting the ammonia to react exothermically with the phosphoric acid in said entrained stream reaction mass in said reaction zone to liberate heat and form a reaction product mixture comprising ammonium salts of the phosphoric acid and steam, said steam comprising both water converted to steam and water of constitution driven from at least two molecules of a material selected from the

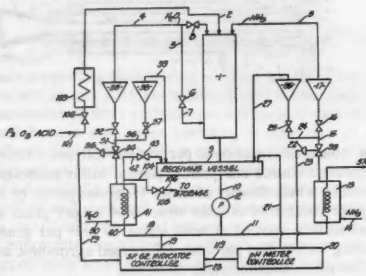
group consisting of phosphoric acid, polyphosphoric acid, ammonium phosphate, ammonium polyphosphate, and mixtures thereof, the pressure of said steam aiding in propelling the reaction mixture through and expelling it from said reaction zone;

(c) quenching said reaction mixture with water to form a quenched reaction mixture;

(d) separating steam from said quenched reaction mixture to produce a steam-separated reaction product; and

(e) further cooling said steam-separated reaction product by heat exchange with air to a temperature in the range of about 80° F. to about 150° F. to form a cooled product comprising an aqueous solution of ammoniated species of both ortho and polyphosphoric acids.

18. In a continuous process for manufacture of an ammonium polyphosphate fertilizer solution, the steps comprising:



(a) introducing ammonia, water and superphosphoric acid analyzing at least about 69% P_2O_5 into a reaction zone in a reaction vessel;

(b) permitting the ammonia to react exothermically within said reaction zone with said superphosphoric acid to liberate heat and form an entrained co-current stream reaction mass comprising steam and ammonium salts of superphosphoric acid;

(c) allowing said steam to rapidly move said reaction mass through said reaction zone and cause a liquid ammonium superphosphoric acid solution to be discharged from said reaction vessel, said fertilizer containing at least a majority of the polyphosphates contained in said superphosphoric acid.

4,334,908

VITREOUS FERTILIZER COMPOSITIONS

Jacques Duchateau, Recquignies, and Christien Van den Bossche, Wavrin, both of France, assignors to BFG Glassgroup, Paris, France

Filed Sep. 28, 1979, Ser. No. 79,987

Claims priority, application United Kingdom, Sep. 29, 1978, 38762/78

Int. Cl.[3] **C05B** *7/00, 19/00;* **C05D** *9/02*

U.S. Cl. 71—52 **16 Claims**

1. A composition of matter for use as a plant fertilizer comprising water soluble vitreous plant nutrient release material and a silicate binder chemically integrated with said vitreous material, to form a unitary mass of glass in expanded or cellular form, wherein said soluble vitreous plant nutrient release material comprises 35 to 55 moles % P_2O_5; 5 moles % K_2O or less; and the balance to 100 moles %, CaO and/or MgO.

2. A composition of matter for use as a vitreous fertilizer constituent comprising a water soluble vitreous constitutent comprising:

35 to 55 moles %, P_2O_5;

less than 5 moles %, K_2O; and

the balance to 100 moles %, CaO and/or MgO,

wherein said composition comprises a first phase containing said soluble vitreous constituent and a second phase of substantially insoluble cellular vitreous material.

15. A method of cultivating plants or seeds in soil comprising placing in contact with such soil, a composition of matter according to claim **2**.

4,334,909

N-(ALKOXYMETHYL)-2'-NITRO-6'-SUBSTITUTED-2-HALOACETANILIDES AND THEIR USE AS HERBICIDES AND PLANT GROWTH REGULANTS

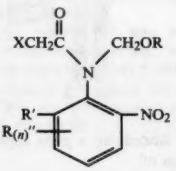
John P. Chupp, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 25, 1980, Ser. No. 133,761

Int. Cl.[3] **A01N** *37/22;* **C07C** *103/32*

U.S. Cl. 71—76 **33 Claims**

26. A herbicidal composition which comprises from about 1 to about 50 parts by weight surface-active agent, from about 4 to about 94 parts by weight of solvent or inert adjuvant and from about 5 to about 95 parts by weight of a compound having the formula



wherein X is chloro, bromo or iodo; R is C_{1-5} alkyl, C_{3-5} alkenyl, C_{3-5} alkynyl or C_{1-5} alkyl substituted by one to three C_{1-5} alkoxy moieties; R' is NO_2; R'' is C_{1-5} alkyl, halogen, C_{1-5} alkoxy, halo (C_{1-5}) alkyl or NO_2; n is zero, one or two.

4,334,910

PLANT-PROTECTIVE AND PEST-CONTROL AGENT

Csaba Lorincz; Eva Lorincz nee Csapo; Istvan Gebhardt; Antal Gimesi; Bela Stefko; Erik Bogsch; Zsuzsanna Földesi nee Szasz, and Kalman Szasz, all of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

Filed Aug. 30, 1976, Ser. No. 718,990

Claims priority, application Hungary, Sep. 1, 1975, RI 576; Sep. 1, 1975, RI 578

Int. Cl.[3] **A01N** *59/02*

U.S. Cl. 71—82 **14 Claims**

1. A herbicidal composition for application to a plant site to promote the growth of potatoes or soybeans and limit the growth of weeds, said composition consisting essentially of a carrier and an amount of 0.01 to 98 by percent of a herbicidally effective component consisting essentially of a mixture of an organic herbicide selected from the group which consists of 2-ethylamino-4-isopropylamino-6-methylthio-1,3,5-triazine; 2,4-di-(isopropylamino)-6-methylthio-1,3,5-triazine; and 2-tert-butylamino-4-ethylamino-6-methylthio-1,3,5-triazine, and at least one inorganic compound selected from the group which consists of sodium bisulfate and potassium bisulfate, the weight ratio of the inorganic compound to the organic compound being substantially 0.1:1 to 15:1.

4,334,911

HERBICIDAL COMPOSITIONS AND METHODS

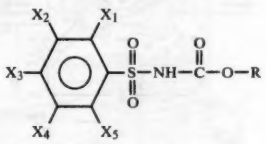
Edmund J. Gaughan, Berkeley and Ferenc M. Pallos, Walnut Creek, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Continuation-in-part of Ser. No. 721,721, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 619,114, Oct. 2, 1975, abandoned. This application Nov. 7, 1977, Ser. No. 849,140

Int. Cl.[3] A01N *25/32*

U.S. Cl. 71—93 10 Claims

1. A herbicidal composition comprising a herbicidally effective amount of a herbicidal mixture comprising a thiocarbamate and a triazine having a weight ratio of about 0.01-50:1, respectively, and an antidotally effective amount of a N-benzenesulfonyl carbamate of the formula



wherein each of X_1, X_2, X_3, X_4 and X_5 is independently selected from the group consisting of hydrogen, halogen and lower alkyl, with the proviso that when X_3 is lower alkyl, X_1 and X_5 are not both hydrogen; and R is selected from the group consisting of lower alkyl, alkenyl, alkynyl and alkyl and alkenyl radicals substituted with up to five halo atoms and wherein said N-benzenesulfonyl carbamate is present in proportion to the herbicide from about 0.01 to about 20 parts by weight, said N-benzenesulfonyl carbamates being antidotally active towards soybeans with said thiocarbamate and triazine herbicide mixture.

4,334,912

UREA DERIVATIVES, AND THEIR PRODUCTION AND USE

Ryo Yoshida, Kawanishi; Haruhiko Katoh, Takarazuka; Seizo Sumida, Nishinomiya; Ichiki Takemoto; Junya Takahashi, both of Takarazuka, and Katsuzo Kamoshita, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

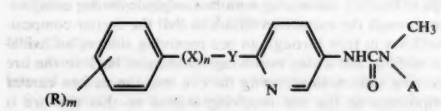
Filed Mar. 12, 1980, Ser. No. 129,980

Claims priority, application Japan, Mar. 13, 1979, 54-29549; Aug. 31, 1979, 54-112313

Int. Cl.[3] A01N *43/40;* C07D *213/62, 213/64*

U.S. Cl. 71—94 14 Claims

1. A compound of the formula:



wherein A is a hydrogen atom, a methyl group or a methoxy group, X is a straight or branched C_1–C_4 alkylene chain, Y is an oxygen atom or a sulfur atom, R, which may be the same or different, is a lower alkyl group, a lower alkoxy group, a trifluoromethyl group, a chlorine atom, a bromine atom or a fluorine atom, m is an integer of 0 to 5 and n is an integer of 0 or 1, provided that in case of R being a fluorine atom, m is an integer of 0 to 5 and in case of R being other than a fluorine atom, m is an integer of 0 to 3.

4,334,913

SUBSTITUTED 3-HYDROXY-2-CYCLOHEXENE-1-ONE COMPOUNDS AS SUGAR ENHANCERS FOR PLANTS

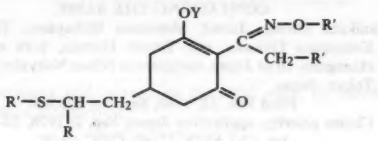
John F. Koerwer, Perkasie, Pa., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 31, 1981, Ser. No. 249,649

Int. Cl.[3] A01N *31/04*

U.S. Cl. 71—98 33 Claims

1. A method for increasing the sugar content of sugarcane or sorghum plants which comprises applying to such plants from 1 to 7 weeks prior to harvesting an effective amount of a compound of the formula



wherein:

R is an alkyl group having from 1 to 4 carbon atoms;

R′ is an alkyl group having from 2 to 4 carbon atoms, and

Y is a hydrogen atom or an alkanoyl group having up to 12 carbon atoms.

4,334,914

BENZOATE DERIVATIVE, METHOD OF PREPARING THE SAME AND USE THEREOF AS A HERBICIDE

Kunikazu Hiraga, Izumi; Katsumasa Okawa, Kawachinagano; Kenichi Ikeda, Toyonaka, and Masanori Hikawa, Kawachinagano, all of Japan, assignors to Nihon Nohyaku Co., Ltd., Tokyo, Japan

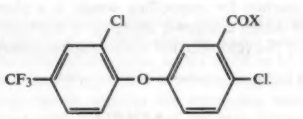
Filed Feb. 12, 1981, Ser. No. 234,104

Claims priority, application Japan, Feb. 13, 1980, 55/16347

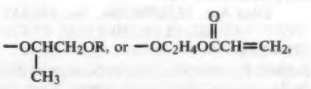
Int. Cl.[3] A01N *37/36, 37/00;* C07C *153/11, 69/76*

U.S. Cl. 71—100 16 Claims

1. Benzoate derivative represented by the formula

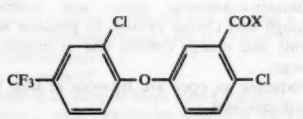


wherein X is —SR, —O—$CH_2CH_2O_nR$, —OCH_2CH_2SR,

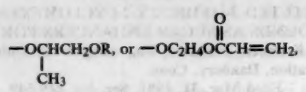


herein R being lower alkyl and n being an integer of 1 to 3.

6. A herbicidal composition comprising an effective amount of a benzoate derivative represented by the formula



wherein X is —SR, —O—$CH_2CH_2O_nR$, —OCH_2CH_2SR,



herein R being lower alkyl and n being an integer of 1 to 3 and an inert diluent.

4,334,915

PHENOXYPHTHALATES AND HERBICIDE CONTAINING THE SAME

Kunikazu Hiraga, Izumi; Masakazu Shibayama, Takatsuki; Katsumasa Ohkawa, and Tatsuo Harada, both of Kawachinagano, all of Japan, assignors to Nihon Nohyaku Co. Ltd., Tokyo, Japan

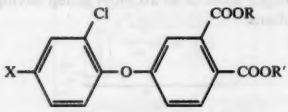
Filed Feb. 22, 1980, Ser. No. 123,820

Claims priority, application Japan, Sep. 2, 1978, 53-107843

Int. Cl.³ A01N *37/40*; C07C *69/80*

U.S. Cl. 71—108 **19 Claims**

7. A herbicidal composition comprising an effective amount of a phenoxyphthalate compound represented by the formula



(I)

wherein X represents chlorine atom or trifluoromethyl group, and R and R′ represent methyl or ethyl group, and a carrier.

4,334,916

USE OF N-CYCLOPROPYL-N′-(2-FLUOROPHENYL)UREA AS A SELECTIVE HERBICIDE

Gene A. Bozarth, Modesto, Calif., assignor to Shell Oil Company, Houston, Tex.

Filed Feb. 11, 1980, Ser. No. 120,219

Int. Cl.³ A01N *47/30*

U.S. Cl. 71—120 **1 Claim**

1. A method for controlling weeds in a planting of grain sorghum which comprises applying to the locus an effective dosage of N-cyclopropyl-N′-(2-fluorophenyl)urea.

4,334,917

CARBOTHERMIC REDUCTION FURNACE

Robert M. Kibby, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Apr. 16, 1980, Ser. No. 140,842

Int. Cl.³ C22B *21/02*

U.S. Cl. 75—10 R **20 Claims**

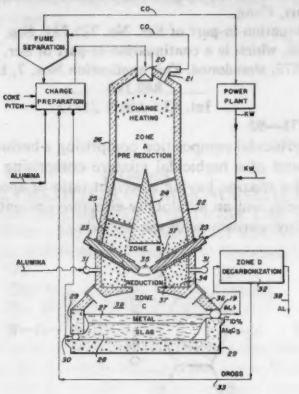
1. A method for carbothermic reduction of alumina to produce aluminum containing less that 20% Al_4C_3, comprising:

A. adding a composite charge to the top of a shaft furnace for forming a charge column as a downwardly moving bed therewithin;

B. countercurrently passing a vapor/gas mixture comprising aluminum-containing vapor and carbon monoxide through said charge column to produce back reactions within said charge column and to release heat to said charge;

C. producing an open arc between at least two opposed electrodes; and

D. forming a reduction zone within said charge column near the bottom thereof and producing a melt surface which is spaced from said arc in surrounding relationship thereto, said melt surface being stabilized at a reduction temperature of about 2100° C. by a rate of heat flux to said melt surface which is in the range of 10–100 KW/sq. inch.



4,334,918

METHOD OF RECOVERING NON-FERROUS METALS FROM THEIR SULPHIDE ORES

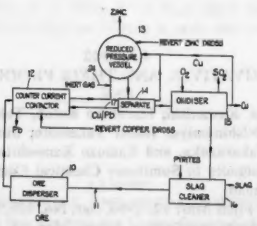
Noel A. Warner, Birmingham, England, assignor to 501 National Research Development Corp., London, England

Filed Mar. 10, 1980, Ser. No. 128,719

Claims priority, application United Kingdom, Mar. 9, 1979, 7908314

Int. Cl.³ C22B *9/00*

U.S. Cl. 75—21 **9 Claims**



1. A method of recovering a non-ferrous metal from a sulphide ore containing the metal using a metal extraction circuit from which said non-ferrous metal can be continuously extracted at an elevated temperature, the method comprising the steps of forcibly circulating a molten sulphide carrier composition through the extraction circuit so that the carrier composition flows in turn through an ore receiving station, an oxidation station, and a slag removing station and back to the ore receiving station, introducing the ore into the molten carrier composition at the ore receiving station so that the ore is dissolved in or melted by the composition at said ore receiving station, thereafter contacting the molten carrier composition containing said ore with oxygen at said oxidation station so that at least part of the fluid mass defined by the ore and the carrier composition is oxidized to produce a molten slag at the surface of the fluid mass and a component selected from the group consisting of a non-ferrous metal, a material capable directly of reducing a component of the fluid mass to produce a non-ferrous metal, and a material capable after further processing of reducing a component of said fluid mass to produce

a non-ferrous metal, heat generated during the oxidation step being recovered by the molten carrier composition and being transmitted thereby to endothermic sites in the circuit including said ore receiving station, removing at least said non-ferrous metal to be extracted, and removing said molten slag at the slag removing station.

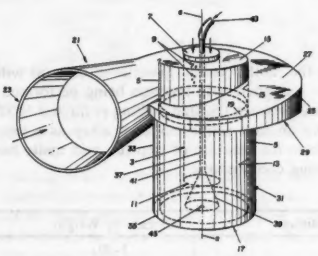
4,334,919
METHOD OF INTRODUCING PARTICULATE MATERIAL AND A GAS INTO A REACTOR

Paul E. Queneau, Cornish, N.H. 03746; Horst J. Richter, P.O. Box 59, Norwich, Vt. 05055, and Reinhardt Schuhmann, Jr., 1206 Hayes St., West LaFayette, Ind. 47906

Division of Ser. No. 86,659, Oct. 22, 1979. This application May 16, 1980, Ser. No. 150,451

Int. Cl.³ C22B *1/10, 5/14, 15/00;* C21B *11/00*

U.S. Cl. 75—23 **7 Claims**



1. In a method for introducing a suspension of solid particulate material in a gas as a paraboloidal suspension into a reactor, wherein a supply of solid particulate material is introduced by gravity through a vertical tubular member and spread therefrom, the improvement comprising:

directing said gas tangentially between said tubular member and a coaxial outer cylindroidal member so as to form a suspension of solid particulate material, emitted from the central tubular member, in said gas, while preventing contact of said particulate material with said coaxial outer cylindroidal member, and discharging said gas from said outer cylindroidal member at a tangential spreading velocity greater than one-half of the vertical downward velocity thereof.

4,334,920
INTEGRATED PROCESS FOR THERMAL CRACKING OF HEAVY OIL AND REDUCTION OF IRON ORES

Kenji Mori, Nishinomiya; Eiji Miura, Mitaka; Reijiro Nishida, Matsudo, and Kiyohiko Koizumi, Tokyo, all of Japan, assignors to Kobe Steel, Ltd. and Koa Oil Co., Ltd., both of, Japan

Filed Apr. 8, 1980, Ser. No. 138,427

Claims priority, application Japan, Apr. 11, 1979, 54/43804

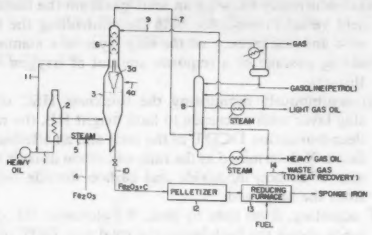
Int. Cl.³ C22B *1/10*

U.S. Cl. 75—26 **7 Claims**

1. An integrated process for thermal cracking of hydrocarbon oil and production of iron which consists essentially of:

(a) thermally cracking the hydrocarbon oil in the presence of iron ore particles of a particle size suitable for fluidization in a fluidized state in a thermal cracking reactor at a temperature of from 400° C. to 630° C. thereby to produce and recover light oils and cracked gases; at the same time causing by-product carbon thus formed to deposit on the iron ore particles; said hydrocarbon oil being a vacuum distillation residue oil having a Conradson carbon value of 5 to 40 percent and a specific gravity of 0.9 to 1.10 and,

(b) introducing said carbon-deposited iron ore with or without additional carbon, into a reducing furnace and heating the thus introduced mixture of the carbon deposited iron ore with or without the additional carbon at a temperature of from 800° C. to 1,200° C. in the reducing furnace, while



maintaining said mixture in the solid state, to thereby produce sponge iron.

4,334,921
CONVERTER STEELMAKING PROCESS

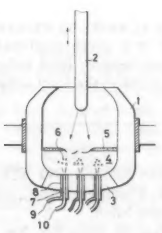
Masazumi Hirai; Kazuo Okohira; Shozo Murakami, and Hajime Nakagawa, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Apr. 9, 1980, Ser. No. 138,511

Claims priority, application Japan, Apr. 16, 1979, 54-46162; Aug. 6, 1979, 54-100009

Int. Cl.³ C21C *5/32, 5/34*

U.S. Cl. 75—60 **13 Claims**



1. A steelmaking process comprising supplying oxygen from a top-blowing lance and a bottom-blowing nozzle substantially throughout the refining operation, with 2 vol% to 17 vol% of a predetermined total oxygen flow rate being supplied from the bottom-blowing nozzle whereas the remaining part of the oxygen is blown onto the surface of the melt from the top-blowing lance.

4,334,922
PROCESS FOR METAL-BATH REFINING

Paul Metz, Luxembourg; Francois Schleimer, Esch; Lucien Lorang, Differdange; Ferdinand Goedert; Romain Henrion, both of Esch, and Fernand Thill, Kockelscheuer, all of Luxembourg, assignors to ARBED S.A., Luxembourg, Luxembourg

Filed Jan. 5, 1981, Ser. No. 222,716

Claims priority, application Luxembourg, Jan. 9, 1980, 82070

Int. Cl.³ C21C *5/30*

U.S. Cl. 75—60 **5 Claims**

1. A process for refining a ferrous melt forming a metallic bath overlain by a supernatant slag layer in a vessel of diameter DC in a steel-making plant,

comprising the steps of:

(a) positioning an oxygen lance above the bath;

(b) injecting a main oxygen jet from said lance through said slag layer into the bath for oxidizing carbon present in the melt;

(c) concurrently directing a secondary oxygen jet from said lance onto the bath surface for afterburning evolving carbon monoxide;

(d) concurrently blowing an inert gas from the bottom of said vessel through the bath for controlling the thickness and consistency of the slag layer in a manner enabling passage of a requisite amount of oxygen therethrough;

(e) continuously monitoring the thickness HSC of said slag layer with reference to bath height HB, the rate of decarburization DCDT of the melt and an afterburning factor X determined as the ratio of carbon dioxide to the sum of carbon monoxide and carbon dioxide released from the bath; and

(f) adjusting, from time to time, the elevation HL of the lance above the bath level, the total rate DOT of oxygen emission from said lance, the flow rate DOS of the secondary oxygen jet and the discharge rate F of said inert gas to satisfy, substantially, the following equation for the time-varying ratio $(HSC/HB)_t$:

$$\left(\frac{HSC}{HB}\right)_t = K + a_1\left(\frac{HL}{DC}\right)^{\alpha 1} - a_2\left[\frac{DOT}{(1+X)DCDT}\right]^{\alpha 2}\cdot\left(1 - a_3\frac{DOS}{DOT}\right)^{\alpha 3} - a_4\left(\frac{F}{DOT}\right)^{\alpha 4}\cdot\left(1 - a_5\frac{DC}{HB}\right)^{\alpha 5}$$

wherein K, a_1, a_2, a_3, a_4, a_5, α_1, α_2, α_3, α_4 and α_5 are parameters which are constant in a given steel-making plant operating with a predetermined ratio of total volume of oxygen introduced into the slag layer to the total volume of oxygen blown from the lance.

4,334,923

OXIDATION RESISTANT STEEL ALLOY

Andrew M. Sherman, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Feb. 20, 1980, Ser. No. 122,915
Int. Cl.³ C22C *38/02, 38/06*
U.S. Cl. 75—124 **4 Claims**

1. An oxidation resistant ferritic steel consisting of up to 0.05% carbon, 0.1–2% silicon, 2–8% aluminum, 0.01–1.0% yttrium, and the balance substantially iron and normal impurities, characterized by the balance of catastrophic oxidation failure when subjected to at least 10 cyclic temperature excursions maximized between about 800° C. and about 1000° C., each cycle comprising at least 200 hours at said temperatures.

3. A ferritic steel resistant to catastrophic oxidation at thermal cycling maximized between 600° C.–1000° C., said steel composition consisting essentially of less than 0.05% carbon, 0.1–1% silicon, 5–7% aluminum, 0.7–0.8% yttrium and the balance being substantially iron and normal impurities characterized by the ability to be cold rollable, and by the absence of catastrophic oxidation failure when subjected to temperatures of 600° C. or greater for periods of up to 500 hours.

4,334,924

PYROMETALLURGICAL OXIDATION OF MOLYBDENUM RICH MATTE

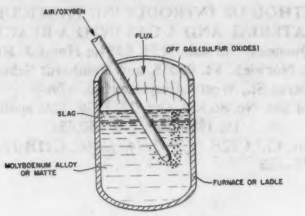
Jonathan J. Kim, Chelmsford, and Paul R. Ammann, Boxford, both of Mass., assignors to Kennecott Corporation, Stamford, Conn.

Filed Dec. 15, 1980, Ser. No. 216,655
Int. Cl.³ C22C *33/00*
U.S. Cl. 75—133.5 **8 Claims**

1. A process for producing a molybdenum product from a material containing molybdenum values comprising the following steps:

(a) selecting an oxidic material that has the following composition:

0.05–3% molybdenum, 0–10% copper, and the remainder being comprised of FeO, Fe_3O_4, SiO_2, CaO, MgO, Al_2O_3, S, and impurities selected from the group of arsenic, lead, zinc and mixtures thereof;



(b) reacting the molten oxidic material of step (a) with an iron-sulfur reductant, said reaction being performed at a temperature between the slag melting point and 1600° C.;

(c) separating an iron sulfur matte or alloy as a reaction product from the reaction of step (b), said matte having the following composition:

Constituent	Percent by Weight
Mo	1–30
Cu	0–20
S	2–15
impurities	0–5
Fe	balance

(d) delivering said matte product of step (c) to a ladle or furnace and injecting oxygen into the matte in said ladle or furnace while it is molten to selectively oxidize the iron and sulfur in said matte or alloy to produce an iron slag phase and a molybdenum phase having the following composition:

Constituent	Percent by Weight
Mo	up to 35
Cu	0–35
S	0–2%
impurities	less than 1%
Fe	balance

and,

(e) removing the molybdenum product of step (d) which separates from the iron slag phase which forms in step (d).

4,334,925

COMBINED CARBURIZATION AND SULFURIZATION/DESULFURIZATION OF MOLYBDENUM-RICH MATTE

Jonathan J. Kim, Chelmsford, and John F. Elliott, Winchester, both of Mass., assignors to Kennecott Corporation, Stamford, Conn.

Filed Dec. 15, 1980, Ser. No. 216,680
Int. Cl.³ C22C *33/00*
U.S. Cl. 75—133.5 **12 Claims**

1. A pyrometallurgical process for recovering a molybdenum-rich alloy from an oxidic material containing molybdenum, copper and iron oxide, the recovery process comprising:

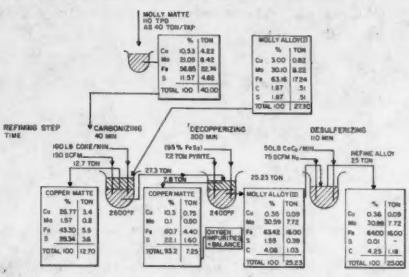
(a) reacting the molten oxidic material with an iron-sulfur reductant to cause a phase separation whereby an iron-molybdenum-copper-sulfur material forms as it separates

from the remainder of the oxidic material which forms a slag;

(b) separating the iron-molybdenum-copper-sulfur material from the remaining slag phase;

(c) adding carbon to the molten iron-molybdenum-copper-sulfur material to cause a liquid phase separation and to produce a first copper-rich sulfide matte as the upper liquid phase and a molybdenum-enriched alloy as the lower liquid phase;

(d) separatng the first copper rich sulfide matte from the molybdenum enriched alloy phase;



(e) adding sulfur or an iron-sulfide reductant to the molten molybdenum-enriched alloy phase formed in c) to cause liquid phase separation and to produce a second copper-rich sulfide matte as the upper liquid phase and a molybdenum-enriched alloy as the lower liquid phase;

(f) separating the second copper-rich sulfide matte from the molybdenum-enriched alloy phase; and

(g) desulfurizing the molybdenum-enriched alloy to produce the molybdenum-rich iron alloy product.

4,334,926

BEARING MATERIAL

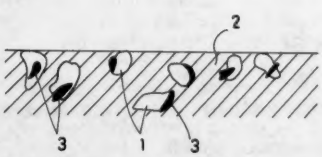
Kenichiro Futamura, and Tatsuhiko Fukuoka, both of Toyota, Japan, assignors to Taiho Kogyo Co., Ltd., Toyota, Japan

Filed Mar. 12, 1980, Ser. No. 129,802

Claims priority, application Japan, Mar. 14, 1979, 54/29483

Int. Cl.[3] B22F *3/00*

U.S. Cl. 75—230 **9 Claims**



1. In a bearing material comprising a steel backing sheet having a sintered Cu-Pb base alloy layer thereon, wherein said Cu-Pb base alloy layer consists essentially of islands of Pb dispersed in a Cu matrix, the improvement which comprises: said Cu-Pb base alloy layer contains dispersed therein from 1 to 30 wt.%, based on the total weight of said copper-lead base alloy layer, of particles of one or more hard materials selected from the group consisting of Mo, Co, Fe_3P, Fe_2P, FeB, Fe_2B, FeCr, FeMn, FeSi, Cr, W, SiC, TiC, WC, B_4C, TiN, BN, Si_2N_4, SiO_2 and ZrO_2.

4,334,927

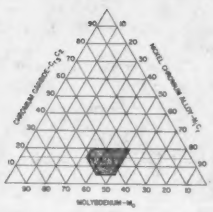
PISTON RING COATINGS

Glenn F. Hyde, 203 Medbury Rd., Timonium, Md. 21093, and John E. Cromwell, 911 W. 38th St., Baltimore, Md. 21211

Filed Dec. 8, 1980, Ser. No. 214,121

Int. Cl.[3] C22C *19/03, 29/00, 32/00*

U.S. Cl. 75—240 **4 Claims**



1. A composition for coating the wearing surfaces of piston rings and the like consisting of a physical admixture of primary particles having a size of about 5 to 100 microns, said admixture comprised of 5 to 20 percent by weight chromium carbide (Cr_3C_2), 32 to 51 percent by weight nickel chromium alloy and 29 to 51 percent by weight molybdenum.

4,334,928

SINTERED COMPACT FOR A MACHINING TOOL AND A METHOD OF PRODUCING THE COMPACT

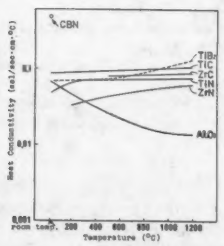
Akio Hara, and Shuji Yazu, both of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 862,988, Dec. 20, 1977, abandoned. This application Feb. 8, 1980, Ser. No. 119,771

Claims priority, application Japan, Dec. 21, 1976, 51-154570; May 12, 1977, 52-54666; Sep. 21, 1977, 52-113987; Nov. 7, 1977, 52-133783; Nov. 8, 1977, 52-134486; Nov. 22, 1977, 52-140486

Int. Cl.[3] B22F *3/00*

U.S. Cl. 75—238 **9 Claims**



1. A sintered compact for use in a tool consisting essentially of:

80 to 20 volume % of high pressure from boron nitride; and the balance being a matrix of at least one binder compound material selected from the group consisting of a carbide, a nitride, a carbonitride, a boride and a silicide of a IVa a Va transition metal of the periodic table, mixtures thereof and their solid solution compounds; the matrix forming a continuous bonding structure in a sintered body and where the high pressure boron nitride is interspersed within a continuous matrix.

4,334,929

USE OF NICKEL-COBALT SINTERED MATERIALS FOR ELECTRIC RELAY CONTACTS

Horst Schreiner; Reinhard Tusche, both of Nuremberg, Fed. Rep. of Germany, and Sjouke Zijlstra, SE Geldrop, Netherlands, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jul. 23, 1980, Ser. No. 171,369

Claims priority, application Fed. Rep. of Germany, May 28, 1980, 3020277

Int. Cl.³ B22F 5/00

U.S. Cl. 75—246 5 Claims

1. An electrical relay contact made of a sintered material which consists of 50 to 85% nickel and 50 to 15% cobalt.

4,334,930

MORTARS FOR THERMAL INSULATING JOINTS

Francis Gagneraud, Villa Montmorency, 6, avenue des Tilleuls, F-75016 Paris, France

Filed Oct. 17, 1980, Ser. No. 198,252

Claims priority, application France, Oct. 24, 1979, 79 26354

Int. Cl.³ C04B 7/02

U.S. Cl. 106—97 3 Claims

1. In a mortar for thermally insulating joints between building or masonry elements, comprising a base of a cementitious binder and fine aggregates or light sand, the improvement wherein said fine aggregates or light sand is a pelleted blast furnace slag having a vitreous or vitrocrystalline microstructure, of granulometry between 0 and 3 mm with spherically shaped grains whose pores are closed for the most part and having an apparent specific gravity, in the dry state, between 1,300 and 2,000 kg/m³ and a thermal conductivity between 0.20 and 0.60 W/m°C.

4,334,931

METHOD FOR PRODUCING ASBESTOS FREE MACHINABLE CALCIUM SILICATE HIGH HEAT-RESISTANT MATERIAL

Hiroshi Asaumi, Kamakura; Kazuo Kubota, Yokosuka; Hisanori Yokoo, and Mitsuo Yamamoto, both of Yokohama, all of Japan, assignors to Nippon Asbestos Co., Ltd., Japan

Continuation-in-part of Ser. No. 147,545, May 7, 1980, abandoned. This application Mar. 16, 1981, Ser. No. 244,072

Claims priority, application Japan, May 15, 1979, 54-58689

Int. Cl.³ C04B 1/00

U.S. Cl. 106—120 5 Claims

1. Asbestos-free calcium silicate heat-resistant green material composition, which comprises:

(A) 100 parts by weight of a mixture of lime and siliceous material having a CaO/SiO_2 mole ratio of 0.6–1.2;

(B) 20–170 parts by weight of xonotlite obtained by hydrothermal synthesis;

(C) 15–150 parts by weight of fibrous wollastonite; and

(D) water in an amount of 2–8 times as much as that of the total solid contents.

4,334,932

PIGMENT FORMULATIONS, PROCESSES FOR THEIR PREPARATION AND THEIR USE FOR PIGMENTING AQUEOUS, ALCOHOLIC OR AQUEOUS-ALCOHOLIC PRINTING INK SYSTEMS AND COLORED LACQUER SYSTEMS

Armand Roueche, Bottmingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Apr. 6, 1981, Ser. No. 251,423

Claims priority, application Switzerland, Apr. 23, 1980, 3129/80

Int. Cl.³ C09D 17/00

U.S. Cl. 524—191 9 Claims

1. A pigment formulation which contains

(1) 10–90% by weight, based on the whole formulation, of a pigment mixture of

(a) 99.5—90 mol %, based on the pigment mixture, of at least one monoazo pigment of the general formula I

$$A—N=N—B \quad (I)$$

(b) 0.5–10 mol %, based on the pigment mixture, of at least one monoazo pigment of the general formula II

$$(A'—N=N—B'—X)_m \quad (II)$$

in which A and A′ are radicals of a diazo component of the benzene or naphthalene series, B and B′ are radicals of a coupling component of the acetoacetic acid arylamide, naphthol or naphthoic acid arylamide series, X is —COOH, $—SO_3H$ or a group of the formula III

$$—COO^{\ominus}\ \frac{Me^{n\oplus}}{n} \quad (III)$$

or of the formula IV

$$—SO_3^{\ominus}\ \frac{Me^{n\oplus}}{n} \quad (IV)$$

in which Me is a metal, and m and n independently of one another are the numbers 1, 2 or 3, and

(2) 90—10% by weight, based on the whole formulation, of a polyacrylate resin containing carboxylic acid groups.

4,334,933

PROCESS FOR PREPARING STABLE INORGANIC PIGMENT

Nobuyoshi Abe, Urawa; Syozo Takatsu, Kamagaya; Kiyoshi Kanemaru, Urawa, and Minoru Yokoyama, Tokyo, all of Japan, assignors to Toho Ganryo Kogyo Co., Ltd. and Nippon Chemical Industrial Co., Ltd., both of Tokyo, Japan, part interest to each

Filed Dec. 31, 1979, Ser. No. 108,938

Claims priority, application Japan, May 21, 1979, 54-61599

Int. Cl.³ C09C 1/00

U.S. Cl. 106—305 4 Claims

1. A process for preparing a stable inorganic pigment composition having improved pigment characteristics wherein a fine amorphous silica is coated as a non-porous, continuous film on the surface of an inorganic pigment, said process comprising

reacting sodium silicate and CO_2 in an aqueous slurry of said inorganic pigment by separately and gradually adding an aqueous solution of said sodium silicate and said CO_2 to said slurry simultaneously at rates which do not vary the pH of said slurry more than ±0.5, with the silica coating being formed under atmospheric pressure, under conditions such that the temperature is not lower than about 60° C. and under a pH of between 7 and 11 and with said inorganic pigment being ultramarine.

4,334,934

APPARATUS FOR PRODUCING A GASIFIED FUSIBLE SUGAR COMPOSITION

J. Ray Barnes, Warson Woods; Robert E. Holdegraver, St. Louis, and Raymond K. Meibaum, Florissant, all of Mo., assignors to Sunmark, Inc., St. Louis, Mo.

Division of Ser. No. 37,852, May 10, 1979, Pat. No. 4,282,263. This application Apr. 24, 1981, Ser. No. 257,341

Int. Cl.³ C13G 1/00

U.S. Cl. 127—9 10 Claims

1. Apparatus for use in a continuous process for producing a gasified solid product comprising an undissolved gas in a matrix of solid material comprising a fusible sugar, the apparatus comprising:

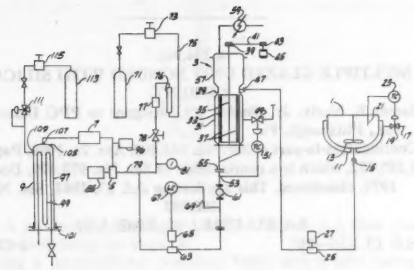
a tank having agitation and heating means for preparing an aqueous solution of fusible sugar;

a positive displacement feed solution pump for transferring said aqueous solution to an evaporator;

an evaporator comprising means for heating a liquid moving continuously therethrough and means for separating from the liquid phase water vapor produced by such heating so as to concentrate said liquid and produce a fused sugar composition, said evaporator having an inlet and an outlet for said liquid with the discharge of said feed solution pump being connected to said inlet;

a positive displacement evaporator underflow pump for continuously transferring fused sugar composition produced in said evaporator;

a discharge pipe line connected to the discharge of said evaporator underflow pump, said discharge line containing a gas sparger therewithin for introduction of a gas into a fused sugar composition stream discharged from said underflow pump;



a supply of gas under pressure connected to said sparger for delivery of gas thereto at a pressure of at least about 400 psig;

an in-line mixer connected to said discharge pipe line downstream of said sparger for intimate mixing of said gas and fused sugar composition stream;

a cooler downstream of said in-line mixer for receiving gasified fused sugar composition and cooling it to produce a solid product, said cooler having a gas connection; and

means for alternately connecting said gas connection to a vent to the atmosphere and to a source of the same gas used for gasification of said sugar composition so that gas pressure may be maintained in said cooler at a level high enough to prevent substantial escape of gas from said gasified sugar composition but low enough to permit flow of gasified sugar composition from said in-line mixer to said cooler.

4,334,935

PRODUCTION OF ALUMINUM ALLOY SHEET

Larry R. Morris, Yarker, Canada, assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada

Filed Apr. 28, 1980, Ser. No. 144,438

Int. Cl.³ C22F 1/04

U.S. Cl. 148—2 **9 Claims**

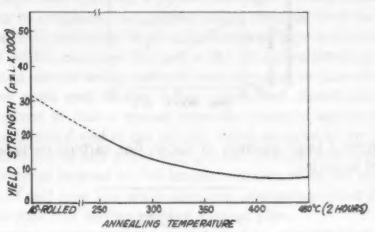
1. A process for producing aluminum alloy sheet, comprising the successive steps of

(a) strip casting a workpiece in slab form, having a thickness of not more than about 25 mm., of an aluminum alloy consisting essentially of 1.3–2.3% Mn, up to 0.5% each of Fe, Mg, and Cu, up to 0.3% Si, up to 2.0% Zn, less than 0.1% each of Zr, Cr, and Ti, other elements up to 0.3% each and up to 1.0% total, balance Al;

(b) slab annealing the workpiece by heating the workpiece for precipitating a major proportion of the Mn in intermetallic particles having an average particle size, at the completion of the slab annealing step, between about 0.1 and about two microns;

(c) initially cold rolling the workpiece in slab-annealed condition, for reducing its thickness;

(d) interannealing the workpiece by heating it for reducing the amount of Mn in solid solution in the aluminum matrix of the workpiece to not more than about 0.2% of the weight of the matrix while maintaining the workpiece substantially free of recrystallization, such that the workpiece upon completion of interannealing contains not more than about 20% by volume of recrystallized grains;



(e) further cold rolling the workpiece for additionally reducing its thickness to provide the workpiece in the form of sheet of desired final gauge; and

(f) annealing the sheet, thereby producing a sheet having a fine grain or subgrain structure.

4,334,936

LIQUID COMPOSITION FOR PHOSPHATING METAL SURFACES

Jannes J. Goolkate, Enschede, Netherlands, assignor to Akzo N.V., Arnhem, Netherlands

Filed Feb. 13, 1981, Ser. No. 234,401

Claims priority, application Netherlands, Feb. 14, 1980, 8000916

Int. Cl.³ C23F 7/08

U.S. Cl. 148—6.15 R **13 Claims**

1. A liquid composition for phosphating metal surfaces, which composition contains

a major amount of methylene chloride,

a phosphating proportion of phosphoric acid,

water in an amount exceeding the proportion of phosphoric acid,

an aliphatic solvent which has an alcohol function, contains less than six carbon atoms and is present in an amount sufficiently high for the phosphoric acid and water in the methylene chloride to be solubilized to a homogeneous, liquid phase, and

a minor amount of an agent sufficient for improving the structure of the phosphate coating, characterized in that said agent is a surface active substance of the anionic or amphoteric type.

4,334,937

PROCESS FOR IMPROVING DECARBURIZATION RESISTANCE OF CHROME-MOLYBDENUM STEEL IN SODIUM

Shunichi Yuhara; Naruo Hasegawa; Takashi Nakasuji, all of Mito, and Norichika Aoki, Atsugi, all of Japan, assignors to Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, Japan

Filed Jun. 24, 1980, Ser. No. 162,612

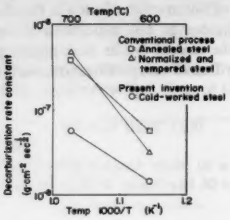
Claims priority, application Japan, Jul. 12, 1979, 54-88572

Int. Cl.³ C22F 0/00

U.S. Cl. 148—12 R **4 Claims**

1. A process for improving the decarburization resistance of a chrome-molybdenum steel, comprising subjecting the

chrome-molybdenum steel to warm working at a temperature of 600° to 750° C. to attain a working ratio of not less than 5% to form a large quantity of stable, fine carbide particles in the steel material.



4,334,938

INHIBITED ANNEALING OF FERROUS METALS CONTAINING CHROMIUM

Robert H. Shay, Kutztown, and Thomas L. Ellison, Slatington, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Aug. 22, 1980, Ser. No. 180,241
Int. Cl.³ C21D *1/48*
U.S. Cl. 148—16.7 **5 Claims**

1. In a process for annealing ferrous metal articles containing at least 8% chromium by weight in a furnace heated to a temperature in excess of 1700° F. and in an atmosphere containing greater than 25% by volume nitrogen balance hydrogen the improvement comprising:

adding to said furnace atmosphere an amount of nitrous oxide inhibitor; and

monitoring said furnace atmosphere to maintain the ratio of the partial pressure of the inhibitor to the partial pressure of hydrogen as defined in the formula

$$P_{inhibitor}/P_{H2}$$

at a minimum value of 10×10^{-5} for nitrous oxide, whereby nitrogen pick-up by said article is held to below 0.3%.

4,334,939

TL-78 EXPLOSIVE COMPOSITION

Ted E. Bushman, Granger, Utah, assignor to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Nov. 25, 1980, Ser. No. 210,456
Int. Cl.³ C06B *45/02*
U.S. Cl. 149—21 **7 Claims**

1. An explosive composition suitable for small diameter bore holes consisting of comminuted ammonium nitrate 83–91% by weight, nitropropane 1–9%, flake aluminum sensitizer $1\propto4\%$, comminuted coal 1–4%.

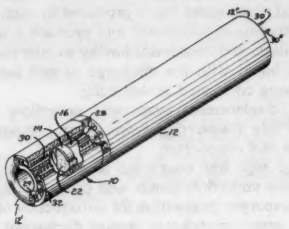
4,334,940

METHOD OF MAKING SOLID ELECTROLYTE OXYGEN SENSOR WITH INTEGRAL HEATER

Edward P. Habdas, and Jon D. Aaron, both of Decatur, Ala., assignors to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 57,624, Jul. 16, 1979, Pat. No. 4,251,342. This application Nov. 17, 1980, Ser. No. 207,301
Int. Cl.³ C04B *39/00*
U.S. Cl. 156—89 **1 Claim**

1. A method of sealing a disc of solid electrolyte in the sensing end of a tubular ceramic oxygen sensor body comprising the steps of forming a recess in the end of the tube, applying a glass frit paste to the bottom and side surfaces of the recess, heating the tube to evaporate the solvent and leave a caked fillet of glass powder, inserting the disc against the glass powder, turning the assembly upside down and placing it on a support so that the disc rests on the support while the weight of the tube is supported solely by the disc, and firing the supported assembly to melt the glass and seal the disc to the tubular body.

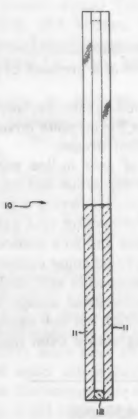


4,334,941

MULTIPLE GLAZED UNIT BONDED WITH SILICATE CEMENT

James E. Neely, Jr., Butler, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 142,492, Apr. 21, 1980, Pat. No. 4,288,252, which is a continuation of Ser. No. 973,479, Dec. 26, 1979, abandoned. This application Jul. 27, 1981, Ser. No. 286,993
Int. Cl.³ C09J *1/02*; E06B *3/24*
U.S. Cl. 156—107 **6 Claims**



1. A method for bonding two sheets of glass in spaced relationship comprising the steps of:

a. mixing sodium silicate, potassium silicate and B-form of aluminum trimetaphosphate with water to from a cement composition;

b. applying said cement composition between two spaced glass sheets to be bonded;

c. exposing said cement composition to sufficient temperature for sufficient time to dry and cure the cement composition, thereby bonding said glass sheets in spaced relationship.

4. An article of manufacture which comprises:

a. at least two glass sheets in spaced relationship;

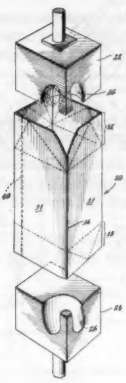
b. a cement composition consisting essentially of sodium silicate, potassium silicate and B-form of aluminum trimetaphosphate,

wherein said glass sheets are bonded together and held in spaced relationship by said cement composition.

4,334,942
METHOD FOR FORMING A PLASTIC FLUID CONTAINER WITH AN INTEGRAL HANDLE

Kenneth P. Thompson, Canton, N.C., assignor to Champion International Corporation, Stamford, Conn.

Filed Aug. 15, 1980, Ser. No. 178,525
Int. Cl.³ B29D *23/10*
U.S. Cl. 156—217 **4 Claims**



1. A process for forming a handle structure in a fluid container comprising the steps of:

forming a thermoplastic container blank into a tube having opposed open ends,

inserting a mandrel provided with half of a substantially toroidal-shaped cavity into the interior of said tube through each of the opposite open ends thereof until said mandrels contact each other with their cavities in mirror-image relation to form a substantially toroidal cavity in said mandrel within the interior of said container tube,

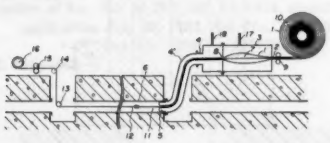
heating the thermoplastic container tube adjacent the toroidal shaped cavity in said mandrel, and

rotating a pair of complementary dies exterior to said container tube into contact with spaced portions of said tube so that the thermoplastic material of said tube deforms and enters said substantially toroidal shaped cavity in said mandrels.

4,334,943
METHOD FOR SMOOTHLY EVAGINATING A TUBULAR MATERIAL UNDER PRESSURE

Katsuaki Zenbayashi; Akio Morinaga, both of Fujisawa; Masao Hirayama, and Akira Morita, both of Settsu, all of Japan, assignors to Tokyo Gas Kabushiki Kaisha and Ashimori Kogyo Kabushiki Kaisha, both of Osaka, Japan

Filed Jul. 29, 1980, Ser. No. 173,656
Claims priority, application Japan, Jul. 30, 1979, 54-97565; Jan. 23, 1980, 55-7251
Int. Cl.³ B29C *27/16;* F16L *55/18*
U.S. Cl. 156—287 **15 Claims**

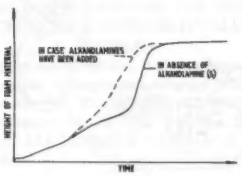


8. A method for smoothly evaginating a tubular lining material within a pipe line and at the same time bonding the evaginated tubular lining material onto the inner surface of said pipe line under pressure, which comprises placing in a pressure container having a discharge pipe a part or whole of a tubular lining material with one terminal end thereof being connected to a first rope-like material having a length at least equal to that of said tubular lining material and the other terminal end thereof being opened, forming a reservoir of a binder enclosed in the interior of said tubular lining material placed in said pressure container to apply said binder onto the inner surface of said tubular lining material, fixing said other leading terminal end in evaginated state to an annular fastener of said discharge pipe, and applying a pressurized fluid to said pressure container to evaginate said tubular lining material over its full length as it is propelled from said discharge pipe and moved forward within said pipe line and at the same time bonding the evaginated tubular lining material onto the inner surface of said pipe line with said binder being interposed therebetween, characterized in that a second rope-like material attached to the same terminal end of the tubular lining material as the first rope-like material and previously passed through said tubular lining material beyond its full length is drawn from the opposite end of said pipe line while applying said pressureized fluid into said pipe line through said discharge pipe.

4,334,944
METHOD OF PREPARING POLYUREA FOAM MATERIALS

Hubert S. Creyf, Brugge, Belgium, assignor to PRB N.V., Brussels, Belgium

Filed May 7, 1979, Ser. No. 36,452
Claims priority, application Netherlands, May 8, 1978, 7804908
Int. Cl.³ B29D *27/04;* B32B *5/18*
U.S. Cl. 156—308.2 **31 Claims**



1. A method of preparing polyurea foam materials, comprising reacting in the presence of at least one catalyst, at least one polyisocyanate with water, 0.5 to 50 parts by weight of at least one plasticizer per 100 parts by weight of polyisocyanate, 0.5 to 50 parts by weight, per 100 parts by weight of polyisocyanate, of at least one alkanolamine having a molecular weight of from 47 up to 2000, and having at least one hydroxyl group and at least one amine group to form a foam material and solidifying the foam as a semi-rigid polyurea foamed product characterized by a rise profile with an increased slope as compared with conventional polyurea foams.

6. A method according to claims 1 or 2 characterized in dividing the foam material into pieces by cutting it in the rise direction transverse to the machine direction of the foam material.

4,334,945
METHOD AND DEVICE FOR SEPARATING PARTS FROM A STRIP OF MATERIAL

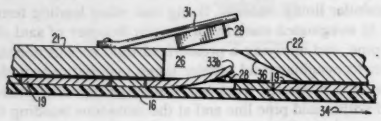
Russell G. Raush, Conestoga, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 3, 1980, Ser. No. 212,445
Int. Cl.³ B32B *31/16*
U.S. Cl. 156—344 **10 Claims**

10. A method of separating parts from a strip of thin material comprising the steps of:

providing a conveyor for moving said strip in a direction parallel to the longitudinal axis of said strip;

providing a first and second loading plate above and substantially parallel to said conveyor;
separating said plates by a space angularily disposed with respect to said axis;
providing a tensioned wire in said space;



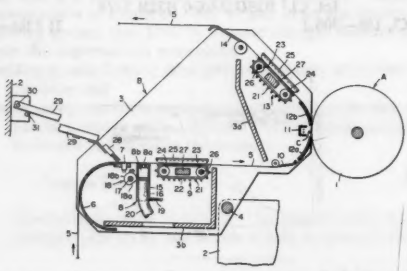
providing a magnet in the proximity of said space; and
feeding said strip between said conveyor and said first and second loading plates and raising a portion of said parts with said magnet to pass said parts over said tensioned wire to separate said parts from said strips.

4,334,946

PAPER SPLICER WITH UPSTREAM SPLICING TABLE

Masanobu Kanoto, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 8, 1980, Ser. No. 194,989
Claims priority, application Japan, Oct. 16, 1979, 54-133104
Int. Cl.³ B25B *31/00*
U.S. Cl. 156—352 **3 Claims**



1. A paper splicer, comprising:
tractor means for transporting paper, said tractor means having a plurality of movable pins for engagement with perforations formed at a lateral side of the paper;
a paper splicing table for splicing a terminal end portion of the paper with a new supply of paper, said paper splicing table being located upstream of said tractor means with respect to the direction of paper transport;
control means for stopping the terminal end portion of the paper on said paper splicing table, said control means being located upstream of said splicing table with respect to the direction of paper transport, such that the new supply of paper is registered, on said tractor means within the paper transport path, with the terminal end portion of the paper by engaging perforations of the new supply of paper with the pins of said tractor means; and
splicing means, in said splicing table, adapted for receiving an adhesive splicing tape.

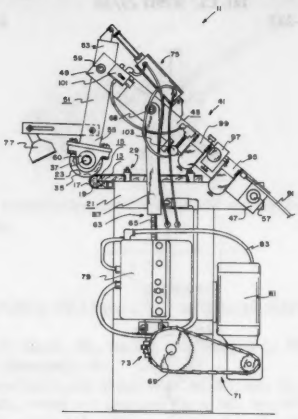
4,334,947

PRESS APPARATUS

Richard J. Zaino, 3280 McCorkle Rd., Memphis, Tenn. 38116

Filed Oct. 16, 1980, Ser. No. 197,623
Int. Cl.³ B29C *17/00*
U.S. Cl. 156—486 **4 Claims**

1. An apparatus for causing a sheet member to extend around the edge of a base member, said apparatus comprising:
(a) a bed means for securely holding said base member;
(b) roller means for rolling said sheet member around said edge of said base member as said base member is securely held by said bed means; and
(c) drive means for causing said roller means to roll around said edge of said base member, said drive means including



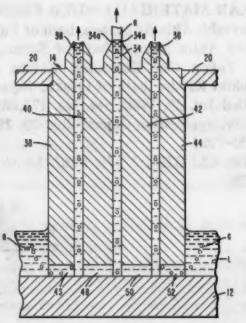
piston means for forcing said roller means against said edge of said base member as said roller means rolls around said edge of said base member, including a pressure regulator for controlling the extension of said piston means and for causing said drive means to be variable for allowing said apparatus to be used with base members of different thicknesses.

4,334,948

METHOD OF AND APPARATUS FOR GROWING CRYSTAL RIBBON

Samuel Berkman, Florham Park, and Robert Metzl, Hamilton Square, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Feb. 23, 1981, Ser. No. 237,414
Int. Cl.³ C30B *15/34*
U.S. Cl. 156—608 **12 Claims**



1. Apparatus for growing a ribbon of crystal material, said apparatus comprising:
a crucible adapted to contain a liquid melt;
a die located in said crucible, said die having at least one capillary passage, a pair of gas scrubbing passages, and lateral passages between said capillary passage and said gas scubbing passages for diffusing gas in said capillary passage to

said gas scrubbing passages, one of said gas scrubbing passages being adjacent each side of said capillary passage, one end of said passages being adjacent the bottom of said crucible whereby said one ends are submerged in any liquid melt therein, the other end of said passages being located above the liquid melt whereby any liquid melt in said crucible establishes a column of liquid in said passages with gases trapped therein diffusing upwardly along said gas scrubbing passages;

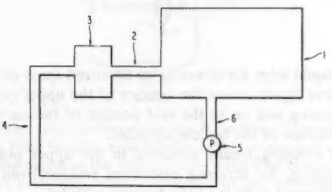
crystal seed pulling means adjacent said capillary passage only for pulling a crystal seed away from said capillary passage at a rate to grow the ribbon.

4,334,949

REDUCING CARBONATE CONCENTRATION IN AQUEOUS SOLUTION

Joseph G. Ameen, Apalachin; Nelson P. Franchak, Binghamton; John Rasile, and Dennis L. Rivenburgh, both of Endicott, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 25, 1980, Ser. No. 210,193
Int. Cl.³ B29C *17/08*; B01D *15/04*
U.S. Cl. 156—642 **6 Claims**



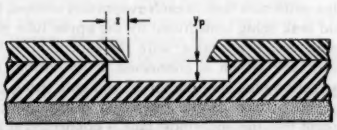
1. A process for etching a polyimide which comprises contacting said polyimide with an aqueous etchant containing about 0.6 to about 1.6% by weight of an alkali metal hydroxide whereby a portion of the hydroxide is consumed in etching and is consumed in reacting with CO_2 absorbed from the atomsphere and dissolved in the aqueous etchant to form carbonate, and then contacting the used carbonate containing etchant with a strongly basic ion-exchange resin bed in the hydroxide form wherein carbonate ions in the etchant are exchanged with hydroxide ions, thereby maintaining the hydroxide concentration is said etchant substantially constant and filtering polyimide which may be present in undissolved form in the solution, and wherein the flow rate of said etchant through said ion-exchange resin is about 2.5 to about 6 liters per minute per cubic foot of resin bed, and then reusing the treated solution for etching.

4,334,950

ADVANTAGEOUS FABRICATION TECHNIQUE FOR DEVICES RELYING ON MAGNETIC PROPERTIES

Bernard J. Roman, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 58,297, Jul. 17, 1979, abandoned. This application Jan. 30, 1981, Ser. No. 230,255
Int. Cl.³ B44C *1/22*
U.S. Cl. 156—643 **9 Claims**



1. A process for fabricating a device that relies on magnetic properties comprising the steps of forming an electrically conducting layer in a desired pattern on a first electrically insulating layer and depositing a second layer of electrically insulating material onto said metal layer CHARACTERIZED IN THAT said electrically conducting layer is formed by

(a) masking said first electrically insulating layer with a delineating material having a thickness less than 1.5 μm such that the area left exposed by said delineating material forms said desired pattern,

(b) subjecting said masked first electrically insulating layer to a media that etches said electrically insulating layer, to form an etch pit where the fraction obtained by dividing the distance said delineating material extends beyond the extremity of the wall of said etch pit by the depth of said etch pit is greater than or equal to Δ but smaller than or equal to 1.5,

(c) depositing said metal in an appropriate thickness onto said masked first insulating layer such that an essentially planar geometry is formed substantially across the entire width of said etch pit, wherein there is a substantial absence of gaps between said deposited metal and the wall of said etch pit that extend to the bottom of said etch pit, and

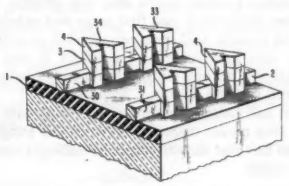
(d) removing said delineating materials.

4,334,951

FABRICATION TECHNIQUE FOR THE PRODUCTION OF DEVICES WHICH DEPEND ON MAGNETIC BUBBLES

Richard S. Wagner, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 129,564, Mar. 12, 1980, abandoned. This application Jul. 22, 1981, Ser. No. 285,848
Int. Cl.³ C23F *1/02*; G11C *11/14*
U.S. Cl. 156—643 **8 Claims**



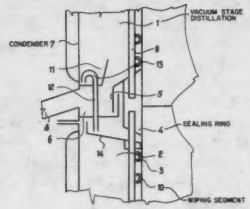
1. A process for fabricating a device comprising a substrate material of garnet structure capable of supporting a uniaxial magnetic domain, a patterned uniaxial magnetic domain propagation control layer, a patterned metallic layer between said garnet substrate and said patterned propagation control layer, and a patterned insulating layer between said patterned metallic layer and said patterned propagation control layer, said process comprising the steps of depositing said layers in sequence in overlying relation to said substrate and then sequentially patterning said propagation control layer, said insulating layer, and said metallic layer characterized in that said propagation control layer is first patterned, said patterned propagation control layer is used as a mask to etch said insulating layer and then said metallic layer is delineated in a pattern different from that of said propagation control layer.

6. The process of claim 1 wherein said metallic layer is patterned by reactive plasma etching.

4,334,952
MULTISTAGE MOLECULAR EVAPORATOR WITH WIPED OFF FILM AND CONTINUOUS REDISTILLATION

Alexander Tkac, and Jan Cvengros, both of Bratislava, Czechoslovakia, assignors to Slovenska vysoka skola technicka, Bratislava, Czechoslovakia

Filed Nov. 10, 1980, Ser. No. 205,626
Int. Cl.³ B01D 1/22
U.S. Cl. 159—11 R **2 Claims**



1. A liquid seal for a multistage molecular evaporator having an evaporator vessel with a convex evaporating surface adapted to carry out a continuous redistillation, comprising in combination,

a first vacuum stage having a first cylindrical portion surrounding the evaporating surface,

a second vacuum stage having a second cylindrical portion mounted below said first stage;

an inwardly projecting first trough mounted on said first cylindrical portion and adapted to collect distillate formed therein,

an overflow tube extending from said first trough downwardly into said second stage;

an overflow collecting and separating means mounted in said second stage below said overflow tube and adapted to receive distillate from the first vacuum stage; said inwardly projecting first trough, overflow tube and overflow collecting and separating means forming a first liquid seal;

an inwardly projecting second trough mounted on said first cylindrical portion below said first trough;

a member mounted in said first stage and extending into said second trough, said member adapted to collect distilland from said first stage and conduct it into said second trough; said second trough and member extending therein adapted to form a second liquid seal;

said first and second stages having evaporator means; and

sealing ring means disposed between the evaporator means of said first and second stages to sealingly connect them to each other.

4,334,953
APPARATUS FOR EVAPORATING RADIOACTIVE LIQUID AND CALCINATING THE RESIDUE

T. Sampat Sridhar, Pinawa, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Canada

Filed Nov. 24, 1980, Ser. No. 210,038
Claims priority, application Canada, Mar. 18, 1980, 348326
Int. Cl.³ B01D 1/22
U.S. Cl. 159—11 R **4 Claims**

1. Radioactive liquid evaporating and residue calcinating apparatus, comprising:

(a) an upwardly extending casing having at least one radioactive liquid inlet to the interior of an upper portion of the casing, a vapour and gas outlet from the interior of an intermediate portion of the casing, and a calcinated residue outlet from the lower end of a bottom portion of the casing,

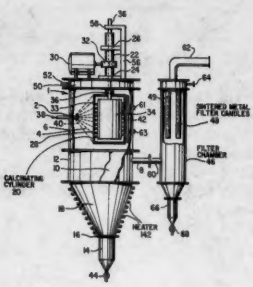
(b) a hollow, calcinating cylinder within the casing,

(c) mounting means rotatably mounting the hollow cylinder within the intermediate portion of the casing with a portion of the curved external surface of the hollow cylinder facing the at least one radioactive liquid inlet from across the interior of the intermediate portion,

(d) driving means for rotating the hollow cylinder,

(e) heating means within the hollow cylinder for heating the said portion of the curved, external surface of the hollow cylinder to a calcinating temperature for the radioactive liquid,

(f) atomizing means, mounted in the at least one radioactive



liquid inlet, for directing an atomized spray of the radioactive liquid across the interior of the upper portion of the casing and on to the said portion of the curved external surface of the hollow cylinder,

(g) scraping means mounted in the upper portion of the casing, for scraping calcinated residue from the curved external surface of the hollow cylinder,

(h) a valve attached to the calcinated residue outlet for releasing calcinated residue from the casing, and

(i) calcinated residue filtering means connected to the vapour and gas outlet.

4,334,954
APPARATUS FOR DESALTING SEA WATER OR BRACKISH WATER

Vincenzo Lagana'; Riccardo Pasero, both of Milan, and Pietro Tiraboschi, Gussago, all of Italy, assignors to Snamprogetti S.p.A., Milan, Italy

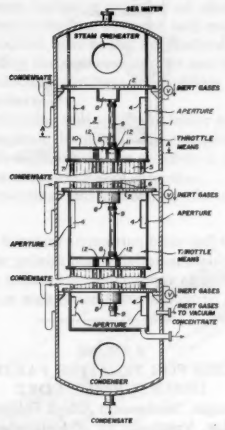
Filed Nov. 27, 1979, Ser. No. 97,785
Claims priority, application Italy, Dec. 15, 1978, 30885 A/78
Int. Cl.³ B01D 1/26
U.S. Cl. 159—18 **3 Claims**

1. In an apparatus for the desalination of sea water or brine, comprising one or more vertical columns divided into a number of cylindrical sections, each section constituting one stage, and each stage having one or more film evaporators in the form of vertical tube bundles connected to upper and lower tube plates, a syphon tube for withdrawing condensate collected at the base of each section and for feeding said condensate to the next stage, a preheater that uses steam as the heating medium, connection pipes between each stage and the next for transferring any inert gas present to a vacuum pump, and a final tube bundle condenser to condense all the steam produced in the last stage, the improvement comprising:

a brine collection tank in each evaporator section, the base of said tank being constituted by the upper tube plate of the underlying evaporator, with the exception of the lowermost tank which is connected at its bottom to a brine extraction pipe, and the top of said tank being constituted by the bottom of the overlying brine collection tank, except that the uppermost tank is connected at its top to a salt water feed pipe, from which tank the brine passes to the underlying film evaporator or, in the case of the lowermost tank, to a brine extraction pipe;

apertures in the side wall of the brine collection tank, with the exception of the uppermost section;

throttle means disposed at the base of each brine collection tank, to allow the brine to pass from said tank to the underlying section in order to dissipate the positive pressure difference between the brine collection tank and the underlying section;



and wherein said preheater in each section comprises a vertical tube bundle, said bundle being connected to the same tube plates as the tube bundle of the film evaporator, and said preheater being connected to the preheaters of adjacent stages by pipes and waterboxes situated within the collection tanks.

4,334,955

DEVICE FOR CONTROLLING EVAPORATION OF A LIQUID

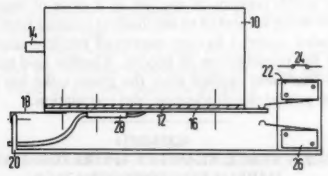
Siegfried Zoeke, Munich, and Anton Stuerzer, Grafing, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 4, 1980, Ser. No. 183,945

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1979, 2936895

Int. Cl.³ B01D *1/02*

U.S. Cl. 159—44 **3 Claims**



1. A device for controlling evaporation of a liquid comprising:

a container for receiving liquid to be evaporated;

a heating element in contact with said container for heating liquid therein and evaporating said liquid;

a base plate on which said container and heating element are disposed;

a leaf spring interconnected between a support and said base plate for supporting said base plate at one end thereof and said container and permitting movement of an opposite free end of said base plate in response to an amount of liquid in said container;

a normally closed microswitch disposed beneath said free end of base plate for interrupting flow of current to said heating element upon said container being supplied with an amount of liquid sufficient to move said free end of said base plate into engagement with said normally closed switch; and

a normally open microswitch disposed above said free end of base plate and engaged therewith when no liquid is present in said container, whereby upon liquid being supplied to said container said free end of said base plate is moved out of engagement with said normally open microswitch closing said normally open microswitch and permitting flow of current to said heating element.

4,334,956

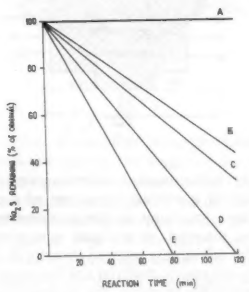
METHOD OF REUTILIZING KRAFT SPENT LIQUOR

Alan Farrington, Donvale, and Peter F. Nelson, Kew, both of Australia, assignors to Australian Paper Manufacturers Limited, South Melbourne, Australia

Filed Nov. 20, 1980, Ser. No. 208,662

Int. Cl.³ D21C *11/02, 11/04*

U.S. Cl. 162—30.11 **6 Claims**



1. A method of reutilizing kraft process spent black liquor which consists of recovering from the kraft process, spent black liquor; converting the kraft black liquor to green liquor; oxidizing the green liquor, which contains sodium sulfide, with an oxygen containing gas and an effective amount of an additive consisting of spent neutral sulphite semi chemical (NSSC) black liquor to convert said green liquor sodium sulfide to sodium thiosulphate; and utilizing the thus oxidized green liquor as part of the digesting liquor in a neutral sulphite semi chemical (NSSC) pulping process.

4,334,957

MICROBICIDAL COMPOSITIONS FOR INDUSTRIAL USE

Sakae Katayama, Kobe, and Osamu Umekawa, Nagoshi, both of Japan, assignors to Katayama Chemical Works Co. Ltd. and Yoshitomi Pharmaceutical Industries Ltd., both of Osaka, Japan

Continuation-in-part of Ser. No. 22,955, Mar. 23, 1979. This application Jul. 29, 1980, Ser. No. 173,404

Claims priority, application Japan, Apr. 5, 1978, 53-40620; Apr. 11, 1978, 53-43697

The portion of the term of this patent subsequent to Sep. 15, 1998, has been disclaimed.

Int. Cl.³ D21D *3/00;* **C02F** *1/50;* **A61K** *31/385*

U.S. Cl. 162—161 **11 Claims**

11. In a method for controlling slime formation in wood pulp or paper manufacture and industrial cooling water systems, the improvement comprising adding a slimicide composition which is composed of 3–20 parts by weight of 4,5-dichloro-1,2-dithiol-3-one as active ingredient, at least 0.2 part by weight per 10 parts by weight of said active ingredient of a surfactant

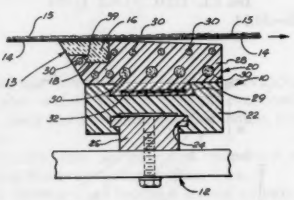
selected from the group consisting of N, N, N', N'-polyoxyethylene polypropylene-ethylenediamines and alkylolamine type nonionic surfactants, and a sufficient amount of a hydrophilic organic solvent consisting essentially of a solvent selected from the group consisting of propylene glycol monomethyl ether, dipropylene glycol monomethyl ether, tripropylene glycol monomethyl ether, and mixtures thereof to make 100 parts by weight of the composition, said composition being substantially free from water.

4,334,958

PRODUCTION OF CONVEYOR SUPPORT BARS FOR PAPER MAKING MACHINERY

Gerald F. Baluha, Flat Rock, and Bernard E. Flanagan, Hendersonville, both of N.C., assignors to Fred W. Meyers, Gilbert, S.C.

Filed Aug. 25, 1980, Ser. No. 180,829
Int. Cl.³ D21F 1/54
U.S. Cl. 162—352 **9 Claims**



1. A relatively rigid elongate bar for transversely supporting the undersurface of a moving conveyor of a paper making machine, said bar comprising an elongate base portion of synthetic polymeric material, an elongate nose portion of wear-resistant material adhesively secured directly in said base portion of synthetic polymeric material and having a smooth, hard surface for supportably engaging the undersurface of the conveyor across its width, and a plurality of flexible, elongate strands of filamentary material of high tensile strength embedded in said base portion of synthetic polymeric material and extending in generally parallel spaced relation along the longitudinal axis of the bar to reinforce and support the same, said bar being further characterized by the absence of any metal exposed along the length of the bar for support of the same.

4,334,959

MIXING METHOD AND APPARATUS

Norman W. Green, Redwood City, Calif., assignor to Occidental Petroleum Corporation, Los Angeles, Calif.

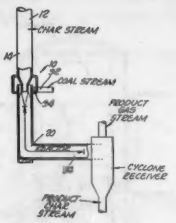
Continuation-in-part of Ser. No. 944,345, Sep. 21, 1978, which is a continuation of Ser. No. 633,898, Nov. 20, 1975, Pat. No. 4,163,693, which is a continuation of Ser. No. 449,073, Mar. 7, 1974, abandoned. This application Apr. 18, 1980, Ser. No. 141,756
The portion of the term of this patent subsequent to Aug. 7, 1996, has been disclaimed.
Int. Cl.³ C10B 3/00
U.S. Cl. 201—12 **18 Claims**

1. A process for mixing solid particulate materials comprising:

a. introducing a first solid particulate material downwardly and in turbulent flow into a mixing zone;

b. simultaneously and separately fluidizing a second solid particulate material in a fluidizing zone with a fluidizing fluid and causing said second solid particulate material to flow upwardly while being suspended in said fluidizing fluid and causing said second solid particulate material to overflow a weir means within said fluidizing zone while in the fluidized state and to pass from said fluidizing zone to said mixing zone, said second solid particulate material being different in substance from said first solid particulate material, said weir means forming an inlet boundary of said mixing zone;

c. introducing said second solid particulate material into said mixing zone substantially completely around said first solid particulate material as said first solid particulate material is first introduced into said mixing zone; and



d. mixing said first solid particulate material and said second solid particulate material in said mixing zone and causing by said mixing an appreciable chemical or physical change in said first or second solid particulate material.

4,334,960

PROCESS FOR TREATING PARTIALLY DESULFURIZED COKE

Kurt Brandenberger, Neuhausen; Alfred Feichtinger, Sins, and Werner Fischer, Venthone, all of Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Sep. 22, 1980, Ser. No. 189,067
Claims priority, application Switzerland, Aug. 21, 1980, 6316/80
Int. Cl.³ C10B 53/00, 57/02
U.S. Cl. 201—17 **4 Claims**

1. A process for manufacturing partially desulfurized coke manufactured from green coke starting material for the production of anodes for the fused salt electrolytic production of aluminum to improve the particle strength thereof which comprises: heating coke having a sulfur content of greater than 2 weight percent to a temperature of about 1250° C. or higher so as to reduce the sulfur content to 2 weight percent or lower thereby obtaining partially desulfurized, calcined coke having low particle strength of less than 70 weight percent of coke which remains as residue on a sieve of specific mesh size after being subjected to mechanical loading which is inadequate for the manufacture of anodes, and treating said coke at a temperature of 1300°–1600° C. for at least 30 minutes to improve the particle strength to equal to or greater than 70 weight percent of coke which remains as residue on a sieve of specific mesh size after being subjected to mechanical loading with the resultant treated material having improved particle strength suitable for the manufacture of anodes, wherein said treatment is an after-treatment applied after the green coke has been subjected to partial desulfurization and calcination.

4,334,961

PAIRED STAGE FLASH EVAPORATOR HAVING IMPROVED CONFIGURATION

David L. Moen, Glen Mills, and Ray D. Peterson, Upper Providence Township, Delaware County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

PCT No. PCT/US81/00851, § 371 Date: Jun. 19, 1981, § 102(e), Jun. 19, 1981
PCT Filed Jun. 19, 1981, Ser. No. 288,954
Int. Cl.³ B01D 3/06; C02F 1/06
U.S. Cl. 202—173 **19 Claims**

1. A multistage flash evaporator unit for a multistage flash evaporation plant wherein successive evaporation stages are operated at successively decreasing pressures to evaporate a solvent from a solution, said evaporator unit comprising:

a generally elongated enclosure having opposed end walls

and elongated side and top and bottom walls extending therebetween;

said enclosure having a lower portion where the solvent is evaporated and an upper portion where the distillate is condensed;

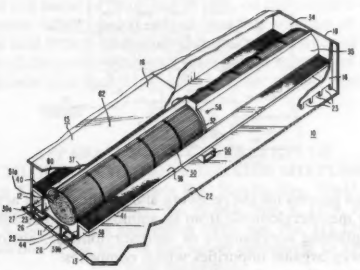
means for dividing said upper enclosure portion into a pair of separate condenser chambers staged in the longitudinal direction;

condenser means including an array of elongated heat exchanger tubes extending between said end walls to provide tube coolant flow in the longitudinal direction, said tubes extending through apertures in said dividing means;

means for collecting distillate for outflow from the condenser chambers;

means for partitioning said enclosure lower portion to define a pair of separate longitudinally extending evaporation chambers through which the solution is successively directed in the cross-enclosure direction;

means for separating said condenser chambers from said



evaporation chambers and for directing flow of evaporated solvent from one of said evaporation chambers to one of said condenser chambers in one higher temperature evaporation stage and from the other evaporation chamber to the other condenser chamber in the next lower temperature evaporation stage;

means for supporting liquid separating means in the vaporized solvent path above each evaporation chamber;

each of said liquid separating means being substantially coextensive with its associated evaporation chamber and both of said condenser chambers to direct the solvent into space thereabove in said upper enclosure portion where a major portion thereof flows generally directly in the transverse direction into the associated condenser chamber and the rest first flows generally in the longitudinal direction and then generally transversely into the associated condenser chamber; and

means for directing vapor in a path through said condenser tubes and for venting noncondensables from each condenser stage to a lower pressure location.

4,334,962

APPARATUS FOR STRIPPING IMMISCIBLE MATERIALS

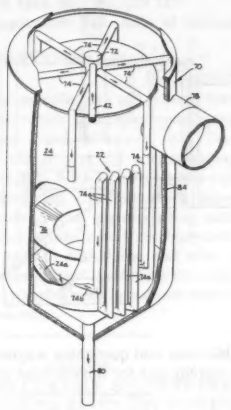
Gordon P. Gerow, Davenport, Fla., assignor to FMC Corporation, Chicago, Ill.

Division of Ser. No. 865,150, Dec. 28, 1977, which is a division of Ser. No. 399,238, Sep. 20, 1973, Pat. No. 4,113,573. This application 1978, Ser. No. 926,596

Int. Cl.³ B01D *3/06*

U.S. Cl. 202—185 R **19 Claims**

1. Apparatus for steam stripping a volatile constituent from a liquid mixture including a pump for continuously pumping said mixture and causing it to flow under superatmospheric pressure, a mixer valve for adding steam to said flowing mixture to bring the temperature thereof to a predetermined level, a back pressure valve connected so as to receive said mixture from said mixer valve, means for controlling the operation of said back pressure valve so that the pressure upstream of said valve is maintained at a predetermined level whereby a major portion of said superatmospheric pressure of said mixture is substantially and abruptly reduced in order to rapidly vaporize a constituent of said mixture, a relatively long conduit arranged to receive the mixture after it has passed through said



back pressure valve, said conduit being provided with a series of protuberances throughout the length of the passage therethrough for creating extreme turbulence in the flowing mixture, a vapor separation tank connected to the outlet end of said conduit, said tank having an upper outlet for collecting the vapors in said mixture and a lower outlet for collecting the liquid phase of the mixture, and means for condensing said vapors and separating the volatile constituent from the water.

4,334,963

EXHAUST HOOD FOR UNLOADING ASSEMBLY OF COKE-OVEN BATTERY

Wilhelm Stog, Waltrop, Fed. Rep. of Germany, assignor to WSW Planungs-GmbH, Waltrop, Fed. Rep. of Germany

Filed 1980, Ser. No. 182,651

Claims priority, application Fed. Rep. of Germany, 1979, 2938893; 1979, 2952179

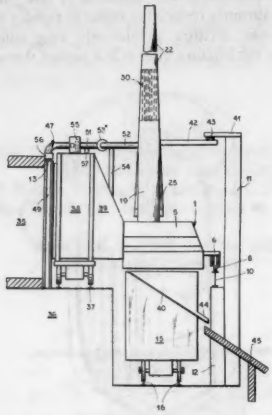
Int. Cl.³ C10B *33/00, 33/14*

U.S. Cl. 202—263 **10 Claims**

1. In an unloading assembly for a coke-oven battery wherein a carriage is displaceable on a first track along a row of coking chambers for receiving their charges and transferring same to a quenching wagon displaceable on a second track alongside said first track,

the combination therewith of an exhaust hood displaceable above said second track and arrestable in line with a coking chamber for coupling with said carriage in an unloading position thereof via a lateral channel enabling the transfer of a charge to said quenching wagon upon positioning thereof below said hood, an open-topped flue rising above said hood, duct means extending from the top of said hood to a junction with said flue, a dry dust filter disposed in said flue above said junction, and a downward extension of said flue forming a bunker below said junction for receiving solids intercepted by said dust filter, said extension having a normally closed bottom outlet openable to discharge accumulated solids, said quenching wagon being provided with a pair of lateral rails, said hood having first support means at one end with wheels riding said rails and further having second support means

at the opposite end with wheels riding said second track, said hood being alternately connectable with and disconnectable from said quenching wagon for positive entrainment thereby and for limited relative displacement.



4,334,964

PROCESS FOR SEPARATING THE REACTION PRODUCTS OBTAINED FROM ETHERIFYING LOWER ISOOLEFINS WITH METHANOL

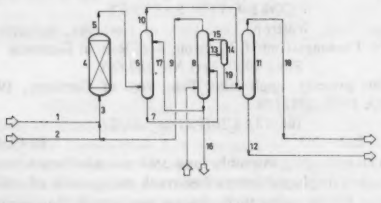
Milan Prezelj, Frankfurt am Main; Günter Osterburg, Duisburg, and Joachim E. Putz, Dreieich-Offenthal, all of Fed. Rep. of Germany, assignors to Edeleanu Gesellschaft mbH, Frankfurt am Main, Fed. Rep. of Germany

Filed 1981, Ser. No. 273,171

Claims priority, application Fed. Rep. of Germany, 1980, 3024147

Int. Cl.³ B01D *3/34*

U.S. Cl. 203—14 **11 Claims**



1. In a method for the production of an ether from the reaction of methanol and an isoolefin hydrocarbon feed stream in which the hydrocarbons have from 4 to 7 carbon atoms in a catalytic reactor wherein water is added to the reaction product from said reaction resulting in the formation of an organic hydrocarbon phase comprising said ether and unreacted hydrocarbons and an aqueous phase comprising methanol and a tertiary alcohol, and wherein said organic hydrocarbon phase is separated into an ether fraction and said aqueous phase is distilled in a distillation column to separate a methanol fraction overhead from said aqueous phase, the improvement which comprises withdrawing a side stream rich in tertiary alcohol from said distillation column, introducing said side stream into a stripping column and separating a second methanol fraction overhead and a tertiary alcohol bottoms fraction from said side stream, and recycling said methanol overhead fraction from the stripping column to the upper part of the distillation column and recycling the overhead methanol fraction from the distillation column to the feed stream to said reactor.

4,334,965

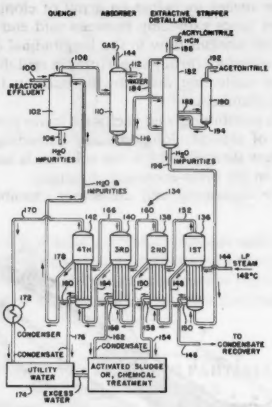
PROCESS FOR RECOVERY OF OLEFINIC NITRILES

Hsin-Chih Wu, Parma, Ohio, assignor to Standard Oil Company, Cleveland, Ohio

Filed 1980, Ser. No. 221,666

Int. Cl.³ B01D *3/40;* **C07C** *121/32*

U.S. Cl. 203—25 **11 Claims**



1. In a process for the recovery and purification of acrylonitrile or methacrylonitrile from an ammoxidation reactor effluent containing acrylonitrile or methacrylonitrile, acetonitrile and heavy organic impurities which comprises:

(a) contacting said reactor effluent with an aqueous quench liquid to produce a gaseous quench effluent and a liquid quench bottoms product,

(b) absorbing said gaseous quench effluent with water to produce a first aqueous solution containing acrylonitrile or methacrylonitrile, acetonitrile and said impurities,

(c) extractively distilling said first aqueous solution with a water-containing stream to produce a gaseous effluent containing acrylonitrile or methacrylonitrile and a liquid bottoms product containing water, acetonitrile and said heavy organics,

(d) stripping acetonitrile from said liquid bottoms product thereby producing a stripper bottoms product containing water and said heavy organic impurities, and

(e) recycling said stripper bottoms product to step (a) to serve as said quench liquid,

the improvement comprising removing water from said stripper bottoms product by multi-effect evaporation prior to returning said stripper bottoms to step (a).

4,334,966

METHOD OF COPPER PLATING GRAVURE CYLINDERS

Sidney C. Beach, Parma, and C. Richard Frisby, Strongsville, both of Ohio, assignors to McGean Chemical Company, Inc., Cleveland, Ohio

Filed 1981, Ser. No. 265,143

Int. Cl.³ C25D *3/38, 7/00*

U.S. Cl. 204—25 **10 Claims**

1. A method of depositing on gravure rolls a layer of copper especially adapted to receive electronic engraving comprising the steps of placing a gravure roll in an electroplating bath comprising from about 150 to about 225 grams/liter of copper sulfate, from about 35 to about 90 grams/liter of sulfuric acid, from about 1 to about 15 grams/liter of a polyether having a molecular weight from about 4,000 to about 10,000, from about 0.3 to about 3.0 milligrams/liter of 1-lower alkyl-2-mercapto imidazole, and from about 1 to about 100 milligrams/liter of a sulfonated, sulfurized benzene compound.

4,334,967

METHOD FOR PREPARING 1,2-DICHLOROETHANE

Gurami A. Tedoradze, proezd Shokalskogo, 67, korpus 2, kv. 268, Moscow; Valentina A. Paprotskaya, mikroraion Serebryanka, 3, kv. 90, Moskovskaya oblast, Pushkino; Andrei P. Tomilov, 5 Parkovaya ulitsa, 56, korpus 6, kv. 59, Moscow; Evegnia A. Ponomarenko, shosse Entuziastov, 100, kv. 148, Moscow, and Jury M. Sokolov, Okruzhnoi proezd, 33, korpus 1, kv. 72, Moscow, all of U.S.S.R.

PCT No. PCT/SU79/00001, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/01686, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 252,976
Int. Cl.³ C25B *3/06*
U.S. Cl. 204—81 5 Claims

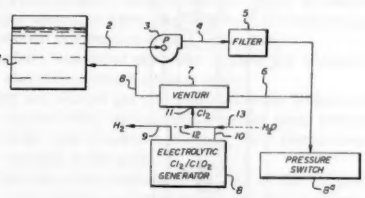
1. A method for preparing 1,2-dichloroethane by electrolysis of a 12–36% aqueous solution of hydrochloric acid at a temperature of from 45° to 70° C. simultaneously with admission of ethylene into the anodic space, which comprises, prior to electrolysis, an additive comprising a metal of the group of ion, or a compound of a metal of said group, or an alloy containing at least one metal of the group of iron, or any mixtures of said substances, is introduced into an aqueous solution of hydrochloric acid in such an amount that the concentration of ions of metals of the group of iron in the aqueous solution of hydrochloric acid is at least 0.006 g-ion per liter of said solution.

4,334,968

APPARATUS FOR GENERATION OF CHLORINE/CHLORINE DIOXIDE MIXTURES

Charles T. Sweeney, 448 Earle Rd., Hewitt, Tex. 76643

Continuation-in-part of Ser. No. 92,645, Nov. 8, 1979, Pat. No. 4,256,552. This application 1980, Ser. No. 121,114
The portion of the term of this patent subsequent to 1998, has been disclaimed.
Int. Cl.³ C25B *1/46, 9/00;* C02F *1/76;* F04H *3/16*
U.S. Cl. 204—96 28 Claims



28. A method for treating a body of water which comprises

providing a chlorine/chlorine dioxide generator comprising a hollow container having a wall dividing the same into two compartments and including an ion-permeable membrane permitting flow of cations therethrough,

a cathode in one of said compartments,

an anode in the other of said compartments,

a bipolar electrode in said other compartment positioned adjacent to said anode or between said anode and said membrane, said bipolar electrode being of a size and shape permitting free circulation of electrolyte therearound and being exposed on all sides to the same aqueous electrolyte, and

providing water to said cathode compartment,

providing a concentrated water solution of a chloride salt to said anode compartment so that said anode and said bipolar electrode are surrounded by said aqueous chloride salt solution,

passing sufficient direct current through said water and said chloride salt solution to produce chlorine/chlorine dioxide at said anode and at said bipolar electrode and to produce hydrogen and a hydroxide at said cathode,

collecting said chlorine/chlorine dioxide, and

mixing said chlorine/chlorine dioxide at a predetermined rate with part of said body of water and returning the resulting mixture to said body of water.

4,334,969

PHOTOCHEMICAL PROCESS FOR THE SYNTHESIS OF STROBILURIN

Wolfgang Steglich, Bonn-Röttgen; Georg Schramm, Hennef-Lichtenberg; Timm Anke, and Franz Oberwinkler, both of Tübingen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed 1981, Ser. No. 279,737
Claims priority, application Fed. Rep. of Germany, 1980, 3025368
Int. Cl.³ B01J *19/08*
U.S. Cl. 204—158 R 1 Claim

1. A process for the manufacture of synthetic strobilurin in the (E) configuration, which comprises condensing a correspondingly substituted cinnamaldehyde with 2-oxo-butyric acid in methanolic KOH to give the correspondingly substituted potassium salt of 3(Z), 5(E)-3-methyl-2-oxo-6-phenyl-3,5-hexadienic acid, converting this potassium salt with methanol/thionyl chloride to the corresponding methyl ester, converting the reaction product with methoxymethylene-triphenylphosphorane to 9(Z) strobilurin, and after chromatographic purification on silica gel irradiating the crude product by means of a mercury vapor lamp in acetone with addition of a small amount of benzene.

4,334,970

RADIATION CURABLE SOLVENT-FREE COMPOSITIONS RECOVERY SYSTEM

Louis J. Lombardi, Roselle, and Roy J. Coyne, Hometown, both of Ill., assignors to The Richardson Company, Des Plaines, Ill.

Division of Ser. No. 739,183, Nov. 5, 1976, Pat. No. 4,201,842, which is a continuation of Ser. No. 405,407, Oct. 11, 1973, abandoned. This application 1979, Ser. No. 106,556
Int. Cl.³ C08F *2/50;* C08J *3/28;* C08K *5/03;* C08L *29/08*
U.S. Cl. 204—159.15 9 Claims

1. An improved photosensitive resin system ink which is essentially solvent-free and which comprises: pigment; between about 25 and about 75 weight percent of an ester of an ethylenically unsaturated organic acid and polyhydric material selected from the group consisting of pentaerythritol, dipentaerythritol, and polypentaerythritol; between about 1 and about 35 weight percent of a photoinitiator selected from the group consisting of halogenated paraffins and esters and containing a sensitizer selected from the group consisting of Michler's ketone and benzoin ethers; and between about 5 and about 35 weight percent of a copolymer of styrene and an unsaturated alcohol having 3 carbon atoms, the relative amounts of said styrene and said unsaturated alcohol in the copolymer being sufficient to provide improved wet rub resistance, gloss and toughness to the resin system ink when cured.

4,334,971

MANUFACTURE OF RESILIENT FOAMS BASED ON A MELAMINE-FORMALDEHYDE CONDENSATE

Harald Mahnke; Guenter Kreibiehl, both of Ludwigshafen; Heinz Weber, Gruenstadt, and Frank P. Woerner, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Del.X

Filed 1981, Ser. No. 242,561
Claims priority, application Fed. Rep. of Germany, 1980, 3011769
Int. Cl.³ C08G *2/02*
U.S. Cl. 204—159.21 4 Claims

1. A process for the manufacture of a resilient foam, based on a melamine-formaldehyde condensate, by foaming an aqueous or alcoholic solution or dispersion which contains a melamine-formaldehyde precondensate, an emulsifier, a blowing agent and a hardener, with or without conventional additives, and then crosslinking the precondensate, wherein, to effect foaming and crosslinking, the solution or dispersion is heated by ultra-high-frequency irradiation in the form of microwaves in

the frequency range of from 0.2 GHz to 100 GHz in such a manner that the power uptake of the solution or dispersion is from 5 to 200 KW per kg of water or alcohol in the solution or dispersion.

4,334,972

AMPHOLYTE AND ITS USE IN SEPARATION PROCESSES

John L. Söderberg, Upsala, Sweden, assignor to Pharmacia Fine Chemicals AB, Upsala, Sweden

Continuation of Ser. No. 64,359, Aug. 7, 1979, abandoned, which is a continuation of Ser. No. 891,105, Mar. 28, 1978, abandoned. This application 1980, Ser. No. 199,232

Claims priority, application Sweden, 1977, 7704783

Int. Cl.³ B01D *57/02;* **C07C** *101/00*

U.S. Cl. 204—180 R **8 Claims**

1. In a separation process selected from the group consisting of chromatographic processes and electrophoretic processes, including isoelectric focusing and isotachophoresis, in which process an ampholyte is used, the improvement which comprises using as said ampholyte a water-soluble ampholyte containing carboxyl groups and amino groups and comprising a mixture of amphoteric substances, said ampholyte comprising the reaction product obtained by reacting (a) at least two compounds selected from a group containing

(A) amino acids,

(B) hydroxylamine,

(C) an amine of the formula

wherein

—R_1 is

(i) hydrogen, or

(ii) the group H_2—N—$(CH_2)_n$—, wherein n is an integer 2–6, or

(iii) the group H_2N—$(CH_2)_3$—NH—$(CH_2)_3$—R_2 and R_3 are the same or different and each representing either

(1) hydrogen,

(2) methyl,

(3) ethyl,

(4) hydroxyethyl, or

(5) together with the intermediate nitrogen atom form an imidazolyl, morpholinyl- or piperazinyl group, and

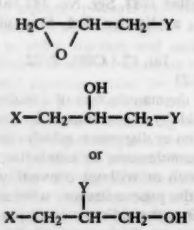
(D) di- and tripeptides

said amino acids and said di- and tripeptides containing at least one nitrogen atom having one or two hydrogen atoms bound thereto and not containing aromatic groups other than imidazolyl and having molecular weight of at most 200,

at least one of said at least two compounds being one which contains at least one carboxyl group,

and/or salts of the aforementioned compounds, and

(b) at least one bifunctional alkylating agent having the formula



where X and Y are the same or different and each represents a halogen atom,

the molar relationship between (b) and (a) being within the range of 1:2–9:10,

in an aqueous alkaline medium.

4,334,973

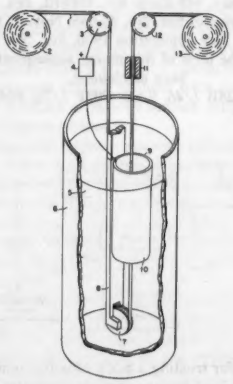
PROCESS FOR ELECTROPHORETICALLY FORMING AN IMIDE COATING ON WIRE

Nancy W. Carlson, Murrysville; Dean C. Westervelt, Acme, and Luciano C. Scala, Murrysville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 171,932

Int. Cl.³ C25D *13/06, 13/10, 13/16*

U.S. Cl. 204—181 R **17 Claims**



1. A method of continuously electrophoretically forming an imide containing polymeric coating on a wire comprising:

(1) forming an emulsion which comprises:

(a) about 0.5 to about 1% by weight based on total emulsion weight of a polymer selected from the group consisting of polysulfones, polyamic acids, polyamide-amic acids, polyamide-amic acid esters, and mixtures thereof;

(b) sufficient amine to form a salt with said polymer or to place a charge on emulsion droplets:

(c) an organic aprotic solvent for said polymer; and

(d) a polar precipitant which forms an emulsion with said solvent and in which said polymer is insoluble, selected from the group consisting of hydroxyethyl acetate, ethylene glycol monomethyl ether, and mixtures thereof, where the lowest boiling liquid in said emulsion boils at at least 120° C. and the highest boiling liquid in said emulsion boils at least 30° C. higher than said lowest boiling liquid;

(2) passing said wire through a conductive tube immersed in said emulsion while applying a D.C. electrical current to said tube and said wire, thereby coating said wire with said polymer; and

(3) curing said polymer coating on said wire.

4,334,974

ELECTROCHEMICAL OXYGEN SENSOR, PARTICULARLY FOR USE WITH EXHAUST GASES OF INTERNAL COMBUSTION ENGINES, AND ESPECIALLY FOR POLAROGRAPHIC APPLICATION

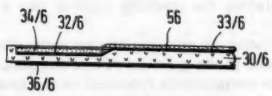
Klaus Muller, Tramm; Helmut Maurer, Schwieberdingen; Ernst Linder, Mühlacker; Franz Rieger, Aalen; Karl H. Friese, Leonberg; Harald Reber; Hermann Dietz, both of Gerlingen; Hermann Ziener, Möglingen; Friedrich Esper, Leonberg, and Gerhard Holfelder, Ditzingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed 1980, Ser. No. 121,598

Claims priority, application Fed. Rep. of Germany, 1979, 2907032

Int. Cl.³ G01N *27/58*

U.S. Cl. 204—195 S 14 Claims



1. Polarographic electrochemical sensor to determine the oxygen content in gases, particularly in the exhaust gases from an internal combustion engine, comprising

a plane, elongated plate-like oxygen ion conductive solid electrolyte sensor element body;

first and second gas pervious electrodes located on, and in contact with, respectively, opposite plane surfaces of the body, said electrodes and said body therebetween being exposed to the gases;

a porous cover positioned on one of the electrodes, said cover having a predetermined diffusion resistance to oxygen molecules;

a flat insulating element having at least approximately the same dimensions as said solid electrolyte body and positioned parallel to said body;

a flat layer-like electrical heating element secured on said flat insulating element and positioned closely adjacent to said electrodes and parallel to the plane surfaces of the body;

means for applying an electrical voltage to said electrodes;

means for connecting electrical energy to said heating element,

said plane sensor element, said electrodes, said porous cover, said flat insulating element and said flat heating element being assembled in a stacked, laminar package;

a housing retaining said package and permitting access of the gas to a sensing portion thereof;

the solid electrolyte body is formed with a depression or recess beneath one of the electrodes;

one of the electrodes being located at the bottom of the recess and at a level below the remainder of the surface of the body,

and wherein the porous cover is fitted within the recess and over the electrode therein and essentially fills the recess or depression and entirely covers the electrode.

4,334,975

APPARATUS FOR ELECTROLYTIC PRODUCTION OF MAGNESIUM METAL FROM ITS CHLORIDE

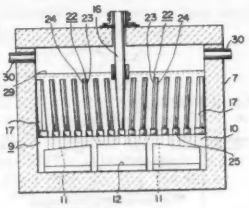
Hiroshi Ishizuka, 19-2, Ebara 6-chome, Shinagawa-ku, Tokyo, Japan

Filed 1980, Ser. No. 188,589

Claims priority, application Japan, 1979, 54-124890; 1979, 54-127710; 1980, 55-123910

Int. Cl.³ C25C *3/04, 3/22, 7/02*

U.S. Cl. 204—247 16 Claims



1. In an apparatus for electrolytic production of magnesium metal from magnesium chloride which apparatus comprises:

(1) a closed electrolysis chamber which is capable of holding in fused state a bath material substantially containing magnesium chloride;

(2) at least one anode and cathode pair contained in said chamber substantially vertically with one end, respectively, outside the chamber for electrical connection;

(3) means for individually recovering the products of magnesium metal and chlorine gas; and

(4) at least one externally unwired intermediate electrode arranged substantially parallel to and between each anode and cathode pair;

an improvement which comprises said anode, cathode and intermediate electrode each being mounted onto a raised top of a platform of an electrically non-conductive refractory material constructed.

4,334,976

UPGRADING OF RESIDUAL OIL

Tsoung Y. Yan, Philadelphia, Pa., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 186,927, Sep. 12, 1980. This application 1981, Ser. No. 224,778

Int. Cl.³ C10G *1/00, 45/00, 17/00*

U.S. Cl. 208—8 LE 16 Claims

1. A process for heavy hydrocarbon oil conversion which comprises (1) heating an admixture of heavy hydrocarbon oil and particulate coal under visbreaking conditions, wherein the average particle size of the coal is less than about 2000 microns; (2) cooling the heat-treated admixture in a settling zone to a temperature in the range between about 400°–700° F. to provide an oil fraction and a fraction of asphaltene flocculated fine solids; and (3) separating and recovering the oil fraction and the solids fraction.

4,334,977

METHOD FOR THE GENERATION OF RECYCLE SOLVENTS IN COAL LIQUEFACTION

Francis J. Derbyshire, Ewing; Philip Varghese, Trenton, and Darrell D. Whitehurst, Titusville, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

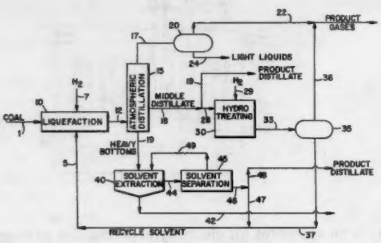
Filed 1981, Ser. No. 225,283

Int. Cl.³ C10G *1/00*

U.S. Cl. 208—8 LE 5 Claims

1. A process for the liquefaction of solid carbonaceous material which comprises:

(a) forming a slurry of the solid carbonaceous material in a recycle liquefaction solvent;
(b) heating said slurry in the presence of hydrogen at a temperature and pressure sufficient to obtain a conversion of said solid carbonaceous material to at least 60% of soluble product;
(c) distilling the converted mixture of solid carbonaceous material and recycle solvent to recover a light fraction comprising gases and light liquids boiling below 250° to 400° F., a middle distillate fraction boiling below 600° to 700° F. and a heavy bottoms fraction;



(d) hydrotreating at least a portion of the middle distillate fraction and recovering recycle hydrogen donor solvent;
(e) extracting the heavy bottoms fraction with naphtha containing from about 10 to 50 wt.% aromatics;
(f) separating from said naphtha the components soluble therein as a recycle hydrogen transfer solvent; and
(g) combining said recycle hydrogen donor solvent and said recycle hydrogen transfer solvent to form said recycle solvent recited in step (a).

4,334,978

DEWAXING AND WAX FILTERABILITY BY REDUCING SCRAPER SPEED IN SCRAPED SURFACE CHILLING UNITS

Thomas E. Broadhurst, Sarnia, Canada, assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 86,455, Oct. 19, 1979, abandoned. This application 1980, Ser. No. 209,475
Int. Cl.³ C10G *73/32*
U.S. Cl. 208—33 **24 Claims**

1. In a process for dewaxing hydrocarbon oils wherein said oil is introduced at a temperature above its cloud point into a first chilling zone divided into a plurality of stages and cooled by contact with a cold dewaxing solvent injected into said stages, passing the oil from stage-to-stage of said chilling zone, introducing said cold dewaxing solvent into at least a portion of said stages, whereby a solvent-oil mixture is formed, maintaining a high degree of agitation in at least a portion of the stages containing solvent and oil thereby effecting substantially instantaneous mixing of said cold solvent and said oil so as to cool said solvent-oil mixture as it progresses through said first chilling zone to a temperature greater than the temperature at which the wax is separated from the oil, i.e., the wax separation temperature but at least about 30° F. above but less than about 40° to 45° F. above said separation temperature, whereby a substantial portion of the wax is precipitated from said oil under conditions of said high agitation and forming a slurry containing the solvent-oil mix and precipitated wax, withdrawing said slurry containing precipitated wax from said first chilling zone and cooling same to separation temperature in a second chilling zone comprising scraped surface chillers thereby precipitating a further portion of said wax from said oil and separating said wax from the solvent-oil mixture in solid-liquid separation means, the improvement comprising operating the scraped surface chillers of the second chilling zone at a chilling temperature range of at least 30° F. and at a rotating element speed of from 1.5 to 6 RPM.

4,334,979

HYDROCARBON CRACKING PROCESS USING A CATALYST CONTAINING GERMANIUM

Brent J. Bertus, and Dwight L. McKay, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed 1980, Ser. No. 139,483
Int. Cl.³ C10G *11/05*
U.S. Cl. 208—114 **22 Claims**

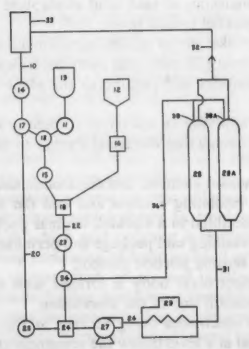
1. In a catalytic cracking process wherein a zeolite-containing cracking catalyst is circulated in a cracking unit between a cracking zone and a regeneration zone in a cyclic fashion, said process comprising:
(a) introducing the cracking catalyst and a hydrocarbon feedstock into the cracking zone, said hydrocarbon feedstock containing contaminants selected from the group consisting of nickel, vanadium, and iron;
(b) contacting the cracking catalyst with the hydrocarbon feedstock in the cracking zone under cracking conditions wherein at least a portion of the contaminants in the feedstock become deposited on the cracking catalyst;
(c) withdrawing an effluent of cracking catalyst and cracked hydrocarbon feedstock from the cracking zone;
(d) separating the cracking catalyst from the effluent;
(e) introducing the cracking catalyst into a regeneration zone;
(f) regenerating the cracking catalyst under elevated temperatures and in the presence of free oxygen-containing gas wherein contaminants deposited on the catalyst from the feedstock prevent complete regeneration of the cracking catalyst; and
(g) recycling the cracking catalyst to the cracking zone; the improvement comprising
circulating a germanium-treated cracking catalyst in the cracking unit, said germanium-treated cracking catalyst having been contacted with a germanium-containing treating agent under conditions to deposit thereon a sufficient amount of germanium or a germanium compound to at least partially passivate the at least one contaminant deposited on the catalyst from the feedstock.

4,334,980

NON-PUFFING PETROLEUM COKE

Harry L. Hsu, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 8,838, Feb. 2, 1979, abandoned. This application 1980, Ser. No. 135,717
Int. Cl.³ C10G *9/14*
U.S. Cl. 208—125 **9 Claims**



1. In a process for the manufacture of non-puffing needle coke having a graphite CTE characteristic of not higher than 7×10^{-7}/°C. over the range of 0° to 50° C. by delayed coking of petroleum feedstock having a level of sulfur content com-

bined molecularly in components of said feedstock sufficiently high enough to contribute to an irreversible volumetric expansion on heating to a temperature of 1400° C. or higher, the improvement consisting of the addition of from 0.05 to 0.5% by wt. of puffing inhibitor selected from the group consisting of iron oxide and calcium fluoride or mixtures thereof to said feedstock prior to or during the coking of said feedstock in a delayed coker, thereby rendering said coke non-puffing.

4,334,981

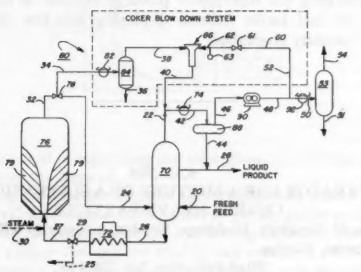
COKER BLOW DOWN RECOVERY SYSTEM

Richard L. Holloway, Bellingham, Wash.; John A. Miller, Seabrook, Tex., and Jerald E. Winters, El Toro, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Division of Ser. No. 43,940, May 30, 1979, Pat. No. 4,261,954. This application 1980, Ser. No. 202,954

Int. Cl.³ C10G *9/14*

U.S. Cl. 208—131 **3 Claims**



1. A process for recovering nonliquefiable components separated from a coker means during clean up of the coker means, said process comprising:

stripping hydrocarbons with a stripping stream from a coke deposit to form a mixture of said hydrocarbons and said stripping stream,

cooling said mixture and separating liquefiable from nonliquefiable components,

mixing said nonliquefiable components with a second stream at a higher pressure than said nonliquefiable components to produce a first pressurized stream,

separating said first pressurized stream into liquefiable and nonliquefiable components,

pressurizing said nonliquefiable components separated from said first pressurized stream to form a second pressurized stream and

separating said second pressurized stream into liquefiable and nonliquefiable components; whereby additional components of hydrocarbon can be recovered from hydrocarbons stripped from coke deposits during clean up.

4,334,982

PROCESS FOR THE SELECTIVE DESULFURIZATION OF OLEFINIC CUTS

Yves Jacquin, Sevres, and Jean-Francois Le Page, Rueil Malmaison, both of France, assignors to Institut Francais du Petrole, Rueil Malmaison, France

Filed 1980, Ser. No. 152,215

Claims priority, application France, 1979, 79 13067

Int. Cl.³ C10G *23/02*

U.S. Cl. 208—216 R **18 Claims**

1. A process for the catalytic hydrodesulfurization of a catalytic cracking effluent boiling at least in major part in the gasoline range and containing 15 to 45% by weight of olefins, without substantial decrease in the octane number of said effluent, and without decreasing the bromine number of said effluent by more than 10%, said process comprising contacting said effluent, in the presence of hydrogen, at a temperature between about 260° and 310° C., with a catalyst comprising (a) a non-acidic carrier, and (b) cobalt and at least one of tungsten and molybdenum; wherein the total weight of cobalt, tungsten and molybdenum in said catalyst, expressed as oxides, is from 2 to 30% of the total catalyst weight; and wherein the atomic ratio

$$R = \frac{\text{cobalt}}{\text{cobalt} + \text{molybdenum and/or tungsten}}$$

is higher than 0.55; and recovering an effluent having a lower sulfur content, substantially the same octane number and at most a 10% reduction in bromine number.

4,334,983

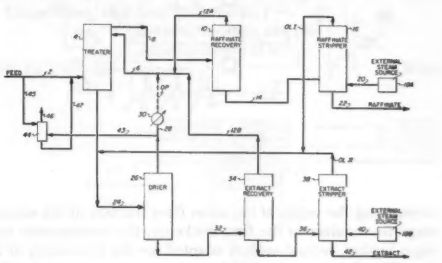
STRIPPING STEAM RECYCLE FOR SOLVENT RECOVERY PROCESSES

David Mentzer, Lake Hiawatha, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed 1980, Ser. No. 164,802

Int. Cl.³ C10G *21/20*

U.S. Cl. 208—326 **10 Claims**



6. In a solvent extraction process wheren a feed stream is separated by contact with a solvent and water, into a raffinate stream and an extract stream and wherein either of said streams is dried in a drier to drive off the water in the form of steam and to yield an extract or raffinate stream which is water free and further wherein the extract or raffinate water free stream is further processed to separate a major portion of the solvent from either the water free raffinate or extract stream and wherein the resulting stream containing minor residual amounts of solvent is vapor stripped in a stripper to remove the residual solvent using steam as the stripping agent, the improvement comprising using as stripping steam steam generated in the raffinate or extract drier which drier is operated under conditions sufficient to produce a steam stream of high enough quality for use as stripping steam said conditions being the use of sufficient stages and sufficient pressure to produce an upgraded pure steam stream of high enough pressure and temperatures to be used for said stripping.

4,334,984

APPARATUS FOR PROCESSING LOW-GRADE WASTE PAPER

Svetozar Vagac; Anton Kostka; Milan Carsky; Lubor Sedlacek; Jaroslav Navratil, all of Bratislava; Jiri Mueller, Litovel; Rudolf Kmeco, Litovel, and Vaclav Knob, Litovel, all of Czechoslovakia, assignors to Vyzkumny ustav papieru a celulozy, Bratislava, Czechoslovakia

Continuation-in-part of Ser. No. 87,929, Oct. 25, 1979, abandoned. This application 1981, Ser. No. 230,313

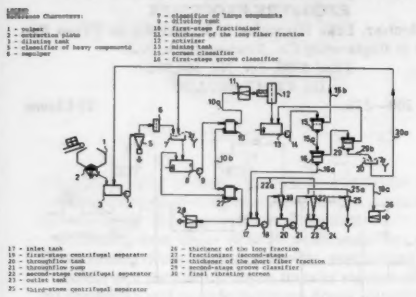
Claims priority, application Czechoslovakia, 1978, 6953-78

Int. Cl.³ B03B *7/00, 9/06*

U.S. Cl. 209—3 **4 Claims**

1. An arrangement for processing low-grade collected waste paper, comprising means for pulping and pre-classifying low-

grade waste paper material, a diluting tank, conduit means connecting the means for pulping and pre-classifying the low-grade waste paper material to the diluting tank to forward the pulped and pre-classifying waste paper material to the diluting tank, the arrangement having a first section comprising a first-stage fractionizer with an outlet for the short fraction of the waste paper material delivered thereto from the diluting tank and an outlet for the long fraction of the waste paper material delivered thereto from the diluting tank, conduit means for feeding the pulped and pre-classifying waste paper from the diluting tank to the first-stage fractionizer, a second-stage fractionizer, the second-stage fractionizer having an outlet for the short fraction and an outlet for the long fraction of the material fed thereto from the first-stage fractionizer, conduit means connecting the outlet for the short fraction of the first-stage fractionizer to an inlet of the second-stage fractionizer, a first thickener of the short fiber fraction, and conduit means



connecting the outlet of the short fiber fraction of the second-stage fractionizer to the first thickener, the arrangement having a further, second section adapted for the processing of the long fiber fraction separated from the pulped and pre-classified waste paper material by the first-stage fractionizer, such second section comprising a second thickener of the long fiber fraction, an activizer of the long fiber fraction, a second mixing tank, a mixing pump, and a screen classifier connected in that order, conduit means connecting the long fiber outlet of the first stage fractionizer to the second thickener, a groove classifier with an outlet for the classified suspension and an outlet for the flushed-out components, a system of tanks, pumps, and centrifugal separators, and a third thickener for the long fraction, conduit means connecting in that order the outlet of the screen classifier with the inlet of the groove classifier and the groove classifier with the system of tanks, pumps, centrifugal separators, and thickener of the long fraction.

4,334,985

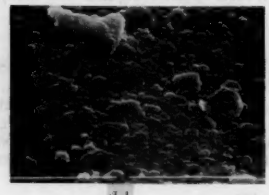
SELECTIVE RHEOLOGICAL SEPARATION OF CLAYS

Ralph E. Turner, Jr., Tennille, Ga., assignor to Anglo-American Clays Corporation, Sandersville, Ga.

Filed 1980, Ser. No. 216,652
Int. Cl.³ B03B *1/00*
U.S. Cl. 209—5 **12 Claims**

1. A method for treating a kaolin clay which has relatively poor high shear viscosity in a high-solids suspension so as to obtain therefrom a fraction having a value of high shear viscosity in said high-solids suspension which is low relative to the starting clay, thereby being desirable for use in coating of paper, said method comprising the steps of: forming said kaolin clay pigment into a dilute aqueous suspension having from 10% to 20% solids by weight; and

mixing said suspension with from about 0.001% to 0.1% by weight of dry clay, of a high molecular weight anionic polyacrylamide polymer or derivative thereof to selectively flocculate aggregates of minute kaolin platelets, and allowing the thereby treated supension to separate into a sedimented phase containing a clay fraction of relatively high high-shear viscosity characteristics and into a supernatant phase which is substantially free of aggregates and which contains in suspension a fraction of said clay pigment possessing relatively low high-shear viscosity properties; and



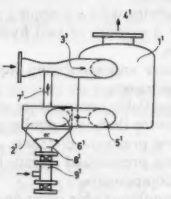
separating the supernatant phase to recover in suspension the said kaolin fraction displaying said low high-shear viscosity properties.

4,334,986

SEPARATOR FOR A MIXTURE OF A SUSPENSION AND COARSE HEAVY PARTICLES

Rune H. Frykhult, Huddinge, Sweden, assignor to AB Celleco, Tumba, Sweden

Filed 1981, Ser. No. 238,114
Claims priority, application Sweden, 1980, 8001440
Int. Cl.³ B04C *9/00*
U.S. Cl. 209—17 **18 Claims**



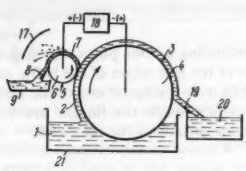
1. A separator for separating a mixture into a light fraction consisting of a suspension, such as a cellulose pulp suspension, and a heavy fraction of coarse particles, the separator comprising means forming a first separation chamber having a first inlet for said mixture, a first outlet for the light fraction, and an outlet for an intermediate fraction enriched in coarse particles, said means also forming a second separation chamber having a second inlet, a second outlet for a light return fraction, and an outlet for separated heavy fraction, said outlet for an intermediate fraction being connected to the second inlet and leading from a first zone in the first separation chamber, said zone having a higher pressure than a second zone connected to the second outlet, said second zone communicating with the first separating chamber, the first and second separating chambers communicating to form a circuit, said second outlet for a light return fraction being located between an inlet region in said second separation chamber and an outlet region in said first separation chamber, the separator including stationary means for maintaining in said inlet region a pressure sufficiently higher than the pressure in said outlet region to induce flow of said light return fraction from said second chamber to said first chamber by way of said second outlet, said inlet region and outlet region being free of any moving part.

4,334,987

METHOD OF SEPARATION OF SOLID PHASE IN DRILLING MUD

Ulmas D. Mamadzhanov, Ts-I, dom 19, kv. 25; Vitold M. Bakhir, proezd Gaidara, 7"A", kv. 17; Vladimir I. Klimenko, Chilanzar, kvartal 23, dom 3, kv. 37; Jury G. Zadorozhny, Chilanzar, kvartal 2, dom 59, kv. 12, and Stanislav A. Alekhin, Chilanzar, kvartal 24, dom 53, kv. 89, all of Tashkent, U.S.S.R.

PCT No. PCT/SU79/00128, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/02041, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 212,087
Claims priority, application U.S.S.R., 1979, 2736503; 1979, 2736504
Int. Cl.³ B03B 5/00
U.S. Cl. 209—210 10 Claims



1. A method of separating the solid phase in a drilling mud, comprising the steps of:

forming an adhesion layer of the drilling mud onto a main curvilinear closed surface which partly projects into a vessel containing the mud by rotating said main curvilinear surface through the mud in said vessel;

separating a portion of said adhesion layer onto an auxiliary rotating curvilinear closed surface positioned adjacent to said main curvilinear surface to contact a portion of said adhesion layer; and

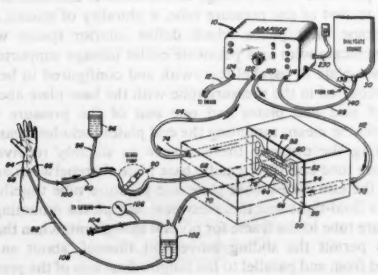
independently rotating said main curvilinear surface and said auxiliary curvilinear surface at speeds of rotation such that the linear speed in the area of contact of said adhesion layer on said main curvilinear surface is the same as the linear speed of the surface of said auxiliary rotating curvilinear closed surface.

4,334,988

CONTROL OF DIALYSIS AND ULTRAFILTRATION

Lee J. Milligan, Englewood, Colo., assignor to Hospal Medical Corp., Littleton, Colo.

Continuation-in-part of Ser. No. 750,151, Dec. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 668,420, Mar. 19, 1976, abandoned, and a continuation-in-part of Ser. No. 645,427, Dec. 30, 1975, abandoned. This application 1980, Ser. No. 174,856
Int. Cl.³ B01D 31/00
U.S. Cl. 210—87 8 Claims



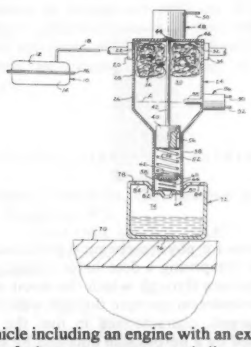
1. A dialysis and ultrafiltration control system for controlling ultrafiltration taking place across a semipermeable membrane device, which comprises a dialysis liquid tank for containing dialysis liquid and which is open to the atmosphere, a level sensor for detecting the level of dialysis liquid contained in the open dialysis liquid tank, dialysis liquid withdrawal means in communication with the open dialysis liquid tank for withdrawing determined volumes of dialysis liquid, means for effecting the circulation of the stream of dialysis liquid which means includes two positive-flow pumps, one disposed upstream and the other downstream of the dialyzer so that the ultrafiltration of liquid being treated is adjusted, and feedback means leading from said level sensor to said positive-flow pumps, wherein the means for controlling ultrafiltration constitutes controlling the operation of the two pumps in relation to each other in response to the level of dialysis liquid sensed in the tank in such manner as to maintain a substantially constant level of dialysis liquid in said tank at a determined rate of withdrawal of dialysis liquid.

4,334,989

FUEL-WATER SEPARATOR WITH PISTON-CHECK VALVE WATER DISPOSAL TO EVAPORATOR

John F. Hall, Bloomfield Hills, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed 1980, Ser. No. 221,140
Int. Cl.³ B01D 35/02
U.S. Cl. 210—114 3 Claims



1. In a vehicle including an engine with an exhaust manifold, an automatic fuel-water separator and disposal assembly for series insertion in the engine fuel supply line, comprising: thin wall enclosure means defining a generally hollow interior space, the enclosure means having a generally elongate configuration with first and second end portions; fuel inlet and outlet means of the enclosure for connection to the fuel line at the first end portion to permit fuel to flow through the interior space; the second end portion of the enclosure means having a depending cylindrically walled portion axially projecting downward from the first portion for the purpose of collecting water which may be separated from fuel passing between the inlet and outlet; diffusion means between the fuel inlet and outlet to promote separation of water from fuel and to permit settling of water into the depending cylindrical portion of the enclosure means; a cylindrical piston valve encircling surrounded by the depending cylindrical portion of the enclosure means with a bottom surface movable therewith toward and away from the first portion of the enclosure means; yieldable means engaging the piston valve and normally holding it positioned toward the first end portion thereby defining a purge chamber for water beneath the bottom surface of the piston valve; the depending cylindrical portion defining a discharge opening located downward from the bottom surface of the piston valve for the discharge of water from the purge chamber; check valve means across the discharge opening to normally prevent the flow of water from the purge chamber but to

permit such flow only when the bottom surface of the piston valve moves toward the check valve means which thereby decreases the volume of the purge chamber to eject the water; the piston valve having normally open passage means therein connecting the purge chamber with the interior space above the piston valve; the piston valve and cylindrical portion of the enclosure means being cooperative to close the passage means when the piston valve is moved to decrease the volume of the purge chamber; means operably connected to the piston valve to selectively produce movement thereof to decrease the volume of the purge chamber whenever ejection of water from the assembly is necessary; water catch means associated with the engine exhaust manifold to temporarily collect water which has been ejected from the purge chamber whereby exhaust heat subsequently boils the ejected water and releases it to the atmosphere thus avoiding undesirable ejection upon the ground.

4,334,990

CARTRIDGE FOR ACTIVE FILTRATION AND TREATMENT OF LIQUID METALS AND ALLOYS

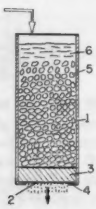
Pierre du Manoir de Juaye, Cognin; Pierre Guerit, Chambery; Gilbert Pollet, La Ravoire, and Jean-Marie Hicter, Voiron, all of France, assignors to Servimetal, Paris, France

Filed 1980, Ser. No. 178,432

Claims priority, application France, 1979, 79 21957

Int. Cl.³ B01D *27/02, 27/04*

U.S. Cl. 210—186 **21 Claims**



1. An apparatus for physico-chemical purification of a flow of liquid metal, comprising a detachable cartridge containing an upstream aperture through which the metal to be purified enters and a downstream aperture through which the purified metal is discharged, characterized in that the downstream aperture is closed by a porous slab obtained by sintering individual elements, at least the external part of which consists of an alkali or alkaline earth metal fluoride and a fluoride of a metal selected from the group consisting of magnesium, aluminum and manganese and that the cartridge is at least partially filled with grains of solid flux, at least the external part of which consists of at least one metallic halide.

4,334,991

BAFFLES FOR SEPTIC TANK PORTS

Earl R. Beede, R.F.D. #3, Concord, N.H. 03301

Continuation of Ser. No. 47,758, Jun. 12, 1979, abandoned. This application 1980, Ser. No. 207,956

Int. Cl.³ B01D *21/24*

U.S. Cl. 210—232 **10 Claims**

1. A baffle for septic tank inlet or outlet ports, said baffle of a plastic inert with respect to reagents normally found within a septic tank and dimensioned to extend downwardly from the top of the tank across and below the path of entering or exiting flows with side edges engageable with the interior of the tank to block lateral flow, means to anchor said baffle to the interior of the tank, said anchoring means including external anchoring flanges secured to the baffle at locations spaced a substantial distance inwardly from the side edges and between the ends thereof, each projecting laterally in a plane parallel to the appropriate one of said side edges, each anchoring flange of a material inert with respect to said reagents and that is resilient whereby when said flanges are brought into seated engagement with and anchored to the interior of the tank, the side edges of the baffle are in tight linear sealing engagement with said interior, and hangers, each attached to the upper edge of the baffle and including a hook portion extending beyond the appropriate one of the side edges of the baffle and shaped and dimensioned to fit over the upper end of the tank wall to hold the baffle in position while the flanges are being anchored against the interior surface of the tank wall.

4,334,992

MODULAR BLOCK FOR OSMOTIC METHODS OF SEPARATION

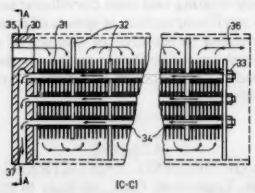
Wulf von Bonin, Leverkusen; Jürgen Lahrs, and Eberhard Born, both of Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed 1980, Ser. No. 118,333

Claims priority, application Fed. Rep. of Germany, 1979, 2907319

Int. Cl.³ B01D *31/00*

U.S. Cl. 210—241 **3 Claims**



1. A modular block for osmotic methods of separation of a permeate from a fluid, comprising: a frame including end plates having respective fluid inlet and outlet openings therein and means mounting the end plates in a spaced apart and parallel condition; a pressure tube having a membrane filter candle removably mounted therein comprising a base plate having a fluid inlet passage communicating with one end plate fluid inlet and a permeate outlet passage and an outside diameter at least equal to that of the pressure tube, a plurality of spaced apart membrane filter plates which define interior spaces which communicate with said permeate outlet passage supported on the base plate in parallel therewith and configured to be slidably received in the pressure tube with the base plate abutting one of said end plates and one end of the pressure tube; wherein the means mounting the end plates includes means for adjusting the distance therebetween to slidably receive the pressure tube and filter candle base plate therebetween and to press the end plates, base plate and pressure tube together to form a fluid-tight seal therebetween; and means mounting the pressure tube to the frame for pivotal movement, when the end plates permit the sliding movement thereof, about an axis spaced from and parallel to the longitudinal axis of the pressure tube between an operative position wherein the end plates, base plate and tube are aligned to enable sealing and a flipped

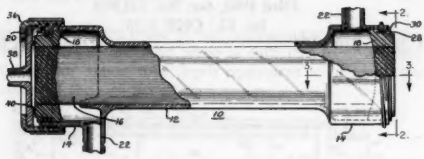
out position wherein the ends of the pressure tube are accessible to permit the removal and insertion of a filter candle.

4,334,993

POTTED-TYPED SEAL WITH STRESS RELIEF AND METHOD OF MAKING SAME

William W. Norton, Lincolnshire, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed 1979, Ser. No. 100,684
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—321.3 **7 Claims**



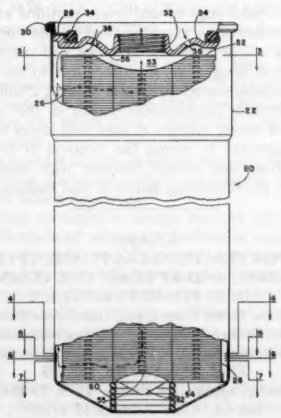
1. A relatively rigid housing having a peripheral surface defining an opening, and comprising a curable sealing composition disposed within said peripheral surface and filling said opening, said sealing composition including stress-relief means comprising a groove defined in the sealing composition and extending axially from one end face thereof over a substantial portion of the axial dimension of said sealing composition, whereby the stresses induced on curing are substantially reduced in the portion of the sealing composition adjacent the open end of the groove which is bonded to said peripheral surface, said groove forming a lip portion of the sealing composition and a central mass portion spaced from the lip portion by the groove, said groove being located close enough to said peripheral surface to allow the central mass portion of the sealing composition, that is located inward of the groove, to shrink upon curing but maintaining a bond between said lip portion and said peripheral surface of the housing.

4,334,994

DISPOSABLE FLUID FILTERS

Richard V. Jensen, Cookeville, Tenn., assignor to Fleetguard, Inc., Columbus, Ind.

Continuation-in-part of Ser. No. 865,544, Dec. 29, 1977, abandoned. This application 1978, Ser. No. 970,731
Int. Cl.³ B01D *25/02*
U.S. Cl. 210—336 **6 Claims**



1. A disposable fluid filter cartridge comprising,

an elongated shell of generally circular cross section having an integral closed end,

closure means sealingly connected to the open end of said shell,

a stack of porous filter elements disposed within said shell,

rigid end plates at opposite ends of said stack of filter elements,

said stack of filter elements having a polygonal outline with the corners thereof in contiguous relation with the interior of said shell, thereby defining fluid flow passageways along the length of the stack of filter discs between the sides thereof and the interior of said shell,

said end plates having tabs extending into embracing relation with the end portions of said stack of filter elements, said tabs embracing a plurality of the polygonal sides of said stack and having edge portions engageable with the interior surfaces of said shell to laterally position said stack within said shell while providing lengthwise flow passages for the fluid,

said stack of filter elements having, on its exterior surface, a plurality of entrances, a central discharge passageway and a plurality of tortuous passageways connecting said entrances, by way of flow through the thickness of said elements, with said central passageway,

said closure means having at least one inlet port through which fluid passes to surround the exterior of said stack of filter elements and an outlet port in fluid communication with the central passageway of stack of filter elements for the discharge of filtered fluid from said cartridge,

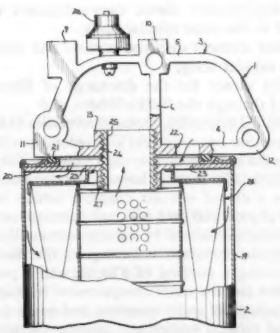
said filter cartridge being further characterized in that the closure means holds the stack of filter elements in compressed relation by engagement with one of said end plates and exerting a compressive force through said stack and the other of said end plates which engages the closed end of said shell, thereby maintaining the integrity of said tortuous passageways.

4,334,995

FILTER ASSEMBLY HAVING AN EXTRUDED FILTER HEAD

Robert M. Mahon, Stoughton, Wis., assignor to Nelson Industries, Inc., Stoughton, Wis.

Filed 1980, Ser. No. 180,877
Int. Cl.³ B01D *29/24*
U.S. Cl. 210—340 **7 Claims**



5. A filter assembly, comprising an elongated extruded filter head composed of a housing including a generally flat base and an outer section connected to the side edges of said base, said housing also including a central wall extending between the base and said outer section and dividing said housing into a pair of longitudinal side-by-side chambers, each chamber extending the full length of the housing and having a uniform non-circular cross section throughout its length, one of said chambers being an inlet chamber and the other of said chambers being an

outlet chamber, inlet means connected to one end of the inlet chamber for supplying a fluid to be filtered to said inlet chamber, outlet means connected to one end of the outlet chamber for withdrawing the fluid from the outlet chamber, a filter mounted on the underside of the base, said filter having a fluid inlet opening and a fluid outlet opening, an inlet port formed in the base and connecting the inlet chamber with the fluid inlet opening of the filter, whereby fluid can flow from the inlet chamber to the filter, and an outlet port formed in the base and connecting the outlet chamber with the fluid outlet opening of the filter, whereby fluid from the filter can flow through the outlet port to the outlet chamber, a nipple mounted in one of said ports and extending outwardly of the base, the outer end of said nipple being threaded, one of said openings being threaded to receive the nipple, threading of said one opening on said nipple bringing said filter into tight sealing engagement with the outer surface of said base.

4,334,996

TUBE PRESSURE FILTERS

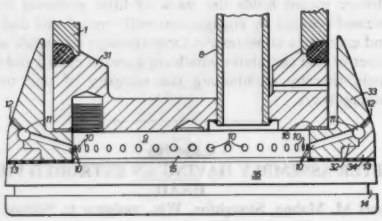
Bernard H. Broad, St. Austell, England, assignor to English Clays Lovering Pochin & Co. Limited, Cornwall, England

Continuation of Ser. No. 924,802, Jul. 14, 1978, abandoned, which is a continuation of Ser. No. 748,188, Dec. 7, 1976, abandoned. This application 1979, Ser. No. 97,934

Claims priority, application United Kingdom, 1975, 51974/75

Int. Cl.[3] **B01D** *25/12;* **B30B** *9/06*

U.S. Cl. 210—350 **7 Claims**



1. In a tube pressure filter which comprises:

(a) a pair of generally coaxial tubular bodies arranged one within the other and adapted to be supported in a generally upright position;

(b) an impermeable elastic sleeve disposed within and secured to the outer tubular body;

(c) a filter element disposed around and supported by the inner tubular body;

(d) outlet means for the discharge of filtrate which has passed through the filter element; and

(e) means for displacing the tubular bodies axially relative to one another between first and second positions;

wherein the arrangement is such that (i) in the first position of said tubular bodies they cooperate with each other to define a closed annular chamber which is divided into generally coaxial and non-intercommunicating inner and outer compartments by said impermeable elastic sleeve, the inner compartment having an inlet for feed material comprising a mixture of a liquid and a particulate solid material and the outer compartment having an inlet for a hydraulic fluid under pressure, and in the second position of said tubular bodies said annular chamber is open to enable particulate solid material to be discharged from the inner compartment, (ii) the inlet of the inner compartment extends around the lower end of the tubular body and debouches into the inner compartment, and (iii) the inlet is in communication with an ante-chamber into which a mixture to be pressure filtered can be introduced under pressure through a feed conduit;

the improvement wherein said inlet comprises a substantially annular, upwardly inclined passage with an outlet aperture which has a width in the range of from 0.5 to 3.00 mm so that, in use, the feed material debouching from said passage has an upward component of velocity, and said feed conduit has a non-return valve associated therewith for preventing the flow back along the feed conduit of feed material to be pressure filtered which is under high pressure, said ante-chamber having a roof and wherein the outlet aperture of said substantially annular passage being located so that, in use, said outlet is higher than said roof.

4,334,997

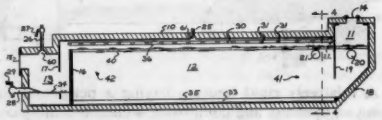
ANAEROBIC DIGESTER TECHNOLOGY

Richard E. Peterson, 382 Pierce Ave., St. Paul, Minn. 55104

Filed 1981, Ser. No. 231,959

Int. Cl.[3] **C02F** *3/28*

U.S. Cl. 210—603 **11 Claims**



1. In an anaerobic digester having an input end for ingress of matter, a holding chamber for stratification and transformation of the matter, and an output end for removal of predetermined components of the stratified and transformed matter, said digester having an interior top area, opposing side wall areas and an interior bottom area, a removal system for said digester to provide means to transfer the predetermined components from said holding chamber to said output end with minimal disturbance on the matter in said holding chamber, said removal system comprising:

(a) an output chamber for sealing said output end from said holding chamber, said output chamber having a lower partition extending generally upward from said interior bottom area congruously with said opposing side wall areas and having a generally horizontal edge spacially removed from said interior top area, and an upper partition disposed generally parallel to and being essentially placed towards said output end relative to said lower partition, said upper partition extending generally downward from said interior top area congruously with said opposing side wall areas and having a lower edge spacially removed from said interior bottom area of said digester, and,

(b) an upper stratum displacement means for transporting an upper stratum of matter from said holding chamber over said horizontal edge of said lower partition and into said output chamber by spraying fluid on the upper stratum, whereby a seal is formed between said output chamber and said holding chamber subsequent to the transfer of upper stratum matter from said holding chamber by said upper stratum displacement means as the level of the displaced matter reaches at least said lower edge of said upper partition to permit the removal of the displaced matter from said output chamber with minimal disturbance to the remaining matter in said holding chamber.

4,334,998

PROCESS FOR PLACING A GAS PHASE, AT LEAST ONE LIQUID PHASE, AND AT LEAST ONE COMMINUTED SOLID PHASE IN CONTACT

Gilbert M. Rios; Henri Gibert, and Jean-Louis Baxerres, all of Montpellier, France, assignors to Agence Nationale de Valorisation de la Recherche (A.N.V.A.R.), Neuilly sur Seine, France

Filed 1980, Ser. No. 163,168

Claims priority, application France, 1979, 79 17430

Int. Cl.[3] **C02F** *3/08;* **B01J** *47/10*

U.S. Cl. 210—617 **12 Claims**

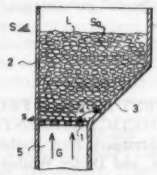
1. A process for placing in contact at least three phases

comprising a gaseous phase, a liquid phase and a solid phase wherein said solid phase comprises a particulate solid having a density between the density of said liquid phase and 1.4 times the density of said liquid phase, the process comprising

providing a compartment having a base comprising feeder means including distributor means of a cross-section area σ and a deflector means comprising a sloping side wall rising from said distributor means at an obtuse angle thereto so that the cross-sectional area of the compartment increases from a minimum area s at the level of the distributor means to a maximum area S where

$s \leqq \sigma$ and $0.15 \leqq s/S \leqq 0.75$,

supplying said solid phase to said compartment such that the volume V_s of the solid phase is sufficient to cover said distributor means to a depth equivalent to at least two layers of the said particles,



supplying said compartment with a volume V_l of said liquid sufficient at least to cover said solid phase at rest and at most equal to five times the volume V_s of the solid phase,

feeding a gas through said distributor means into said compartment so as to generate a periodic pulsing in said liquid as said gas passes therethrough,

maintaining the flow rate of said gas such that the average gas velocity U at the narrowest cross-section of said compartment is at least equal to a critical boundary value U_c between a continuous flow state of the gas in the form of microbubbles through the solid product layer and a state of accumulation at the base of the solid product layer and at most equal to a maximum value U_E above which the liquid phase is entrained in the gas,

whereby said gas flow produces a generally circulatory motion of said liquid and solid phases in said compartment about an approximately horizontal axis.

4,334,999

PROCESS FOR THE EXTRACTION OF METAL IONS

David A. Cornwell, Okemos, Mich., assignor to Board of Trustees, Michigan State University, East Lansing, Mich.

Continuation of Ser. No. 99,019, Nov. 30, 1979, abandoned, which is a continuation-in-part of Ser. No. 25,321, Mar. 30, 1979, abandoned. This application 1981, Ser. No. 240,186

Int. Cl.³ B01D *11/00;* **C02F** *1/26, 1/42*

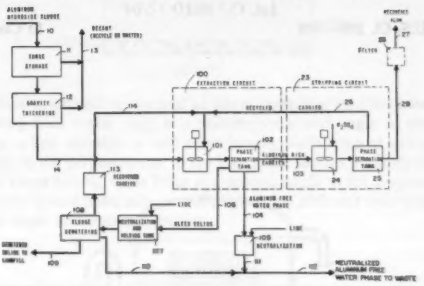
U.S. Cl. 210—638 **19 Claims**

14. The process for aluminum sulfate recovery from a sludge produced during aluminum sulfate coagulation treatment of potable water which comprises:

(a) providing an aqueous sludge mixture containing dispersed flocculated aluminum hydroxide and containing between about 0.5 to 12 percent suspended solids by weight and having a pH between about 4 and 8, wherein the aluminum hydroxide has been precipitated as a floc in the aqueous solution by the addition of the aluminum sulfate and once precipitated is not dissolved to form aluminum ions by the addition of acid to the aqueous solution;

(b) providing a water immiscible organic solvent containing an alkyl phosphoric acid ester or an alkyl phosphate acid ester as an extractant dissolved therein as a liquid ion exchange extractant mixture;

(c) contacting the aqueous mixture with the extractant mixture by providing the aqueous mixture in admixture with the extractant mixture so that aluminum reacts with the extractant to form an alkyl phosphate aluminum salt in the organic solvent, a hydrogen ion is transferred to the aqueous mixture and the pH of the aqueous solution is lowered, wherein the contacting is without prior acidification of the aqueous solution to dissolve the flocculated aluminum hydroxide with an acid other than the extractant and



wherein the aluminum from the hydroxide is preferentially extracted from the aqueous solution;

(d) separating the aqueous mixture and the extractant mixture containing the alkyl phosphate aluminum salt; and

(e) contacting the extractant mixture with aqueous sulfuric acid so that aluminum sulfate forms in an aqueous phase which can be reused as a coagulant and the alkyl phosphoric acid-ester or alkyl phosphate acid ester is regenerated in the organic solvent.

4,335,000

CHROMATE ION REMOVAL FROM AQUEOUS SOLUTIONS

Jesse G. Grier, Gilbertsville, Ky., and Jimmie R. Hodges, Downington, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 956,755, Nov. 1, 1978, abandoned, which is a continuation of Ser. No. 832,866, Sep. 13, 1977, abandoned. This application 1980, Ser. No. 118,047

Int. Cl.³ C02F *1/42*

U.S. Cl. 210—662 **17 Claims**

1. A process for removing chromate ions from aqueous feed solution comprising (a) passing said feed through an ion exchange resin bed comprising an intimate mixture of an anion exchange resin in the chloride form and a weak cation exchange resin in the conditioned hydrogen form, in which (i) the total amount of exchange sites on the anion resin is sufficient to remove the chromate ions from the feed and (ii) the cation exchange resin has a number of exchange sites not substantially less than the number of exchange sites present in the anion exchange resin (b) monitoring the pH of the effluent aqueous solution and (c) halting the feed whenever the pH of the effluent rises above about 2.

4,335,001

PROCESS AND DEVICE FOR SEPARATION OF EMULSIONS BY COALESCENCE

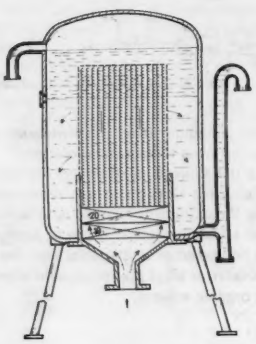
Yves Aurelle, Aucamville; Jean-Paul Calteau, Saint-Louis, and Henri Roques, Portet-sur-Garo, all of France, assignors to Agence Nationale de Valorisation de la Recherche (A.N.-V.A.R.), Neuilly-sur-Seine, France

Continuation of Ser. No. 866,817, Jan. 4, 1978, abandoned. This application 1979, Ser. No. 96,580

Claims priority, application France, 1977, 77 00203

Int. Cl.³ B01D *17/04*

U.S. Cl. 210—708 13 Claims



1. A process for the continuous separation of a secondary emulsion of at least one dispersed phase comprising droplets of a diameter of between 0.5 and 20 microns emulsified in at least one continuous phase of different density comprising:

providing a vessel having an emulsion inlet and outlets for the separated dispersed and continuous phases and a fixed coalescing bed adjacent said emulsion inlet, said coalescing bed having a closed periphery so that supplied emulsion passes substantially solely axially through said bed,

providing guide means in contact with said bed and extending downstream away from said bed, said guide means comprising a packing of a particulate or porous material of high porosity and less density than said bed and being wettable by said dispersed phase,

causing said emulsion to flow vertically through said emulsion inlet and through said bed for achieving a good coalescence of microdroplets of said dispersed phase and continuing the flow of said emulsion vertically whereby the coalesced dispersed phase is directly axially by said guide means to the end thereof away from said bed where a layer of said coalesced phase is established in contact with said end guide means away from said bed, and the continuous phase flows radially outwardly from said guide means into a peripheral space between said guide means and said vessel, said separated phases thereby forming two layers in said vessel,

withdrawing said separated phases through the respective outlets at a rate of such that the interface between said layers remains substantially axially midway between the ends of said guide means.

4,335,002

COMPOSITIONS OF MATTER CONTAINING CIS-3-HEXENAL

Cynthia J. Mussinan, Bricktown; Braja D. Mookherjee, Holmdel; Manfred H. Vock, Locust; Frederick L. Schmitt, Holmdel; Edward J. Granda, Englishtown; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 85,707, Oct. 17, 1979, Pat. No. 4,241,098. This application 1980, Ser. No. 169,678

Int. Cl.³ A23L *1/226, 2/26;* A61K *7/46;* C11B *9/00*

U.S. Cl. 252—1 1 Claim

1. The composition of matter consisting of:

Cis-3-hexenal from 20% up to 80%;

Trans-2-hexenal from 5% up to 40%;

Cis-3-hexenyl formate from 0% up to 20%;

Cis-3-hexenol from 0% up to 40%;

Cis-3-hexenyl-cis-3-hexenoate from 1% up to 10%;

said percentages being "mole" percentages.

4,335,003

PREPARATION AGENT FOR THE PRODUCTION OF SYNTHETIC FILAMENTS

Christlieb Nordschild, Stuttgart; Paul Rathfelder, Boeblingen; Horst Rieckert, Calw, and Dieter Wolber, Magstadt, all of Fed. Rep. of Germany, assignors to Schill & Seilacher GmbH & Co., Boeblingen, Fed. Rep. of Germany

Filed 1980, Ser. No. 165,569

Claims priority, application Fed. Rep. of Germany, 1979, 2927170

Int. Cl.³ D06M *13/18;* C10M *3/22;* D06M *15/08*

U.S. Cl. 252—8.9 8 Claims

1. A composition for use as an auxiliary agent in the production of synthetic fibers and filaments, comprising a butylene oxide adduct of a fatty alcohol oxyethylate having the formula

$$R—O—(C_2H_4O)_n—(C_4H_8O)_mH$$

wherein

R = C_8–C_{26}

n = 1–20, and

m = 1–5

and at least one additional component of spinning preparations for the synthetic fibers and filaments.

4,335,004

LUBRICATING COMPOSITIONS CONTAINING DIESTERS OF DIMERCAPTO ETHERS

Howard F. Efner, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed 1980, Ser. No. 111,414

Int. Cl.³ C10M *1/38*

U.S. Cl. 252—48.6 8 Claims

1. A lubricating oil composition comprising a major proportion of a mineral lubricating oil containing a small, but effective, amount, sufficient to impart lower coefficient of friction, of a diester having the general formula $RCOS(CH_2)_nO(CH_2)_nSCOR'$ where R and R' are alkyl radicals having from 7 to 25 carbon atoms, n can have values between 1–6 and the radicals need not be identical.

5. A method for reducing the coefficient of friction of mineral lubricating oils which comprises incorporating therein a small, but effective, amount sufficient to lower the coefficient of friction of a diester having the general formula $RCOS(CH_2)_nO(CH_2)_nSCOR'$ where R and R' are alkyl radicals having from 7 to 25 carbon atoms, n can have values between 1–6 and the radicals need not be identical.

4,335,005

LUBRICANT COMPOSITIONS CONTAINING METAL ANTIFATIGUE ADDITIVES

Eldon L. Armstrong, Mullica Hill, and Phillip S. Landis, Woodbury, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1980, Ser. No. 186,095
Int. Cl.³ C10M *1/10, 3/02, 7/02, 7/48*
U.S. Cl. 252—49.6 5 Claims

1. A lubricant composition comprising a major proportion of an oil selected from the group consisting of mineral oils and synthetic oils, said synthetic oils being selected from the group consisting of polyisobutylene, polybutenes, hydrogenated polydecenes, di-dodecylbenzene, polypropylene glycol, polyethylene glycol, trimethylol propane esters, neopentyl and pentaerythritol esters, di(2-ethylhexyl) sebacate, di(2-ethyl hexyl) adipate, dibutylphthalate, fluorocarbons, silicate esters, silanes, esters of phosphorous-containing acids, liquid ureas, ferrocene derivatives, hydrogenated mineral oils, chain-type polyphenyls, siloxanes and silicones, polysiloxanes, alkyl-substituted diphenyl ethers, butyl-substituted bis(p-phenoxyphenyl)ether, phenoxy phenylethers, and greases thereof containing, in an amount sufficient to improve metal-fatigue, a compound selected from the group consisting of arylboronic acids and hydrocarbyl group substituted arylboronic acids.

4,335,006

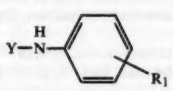
METHOD OF STABILIZING LUBRICATING FLUIDS

Baldev K. Bandlish, Middlebury; Frederick C. Loveless, Cheshire, and Walter Nudenberg, Newtown, all of Conn., assignors to Uniroyal, Inc., New York, N.Y.

Continuation of Ser. No. 43,995, May 31, 1979, abandoned. This application 1980, Ser. No. 194,326
Int. Cl.³ C10M *1/10, 1/54*
U.S. Cl. 252—49.7 16 Claims

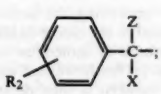
1. A method for stabilizing a lubricating oil which comprises utilizing as a stabilizer system an effective amount of:

(A) An amine compound of the general formula



(I)

wherein Y is



(II)

wherein Z and X are each H or C_1–C_2 alkyl;

provided however that both X and Z are not simultaneously H; R_1 is $COOC_2H_5$, CH_3O, or p-Cl and R_2 is selected from the group consisting of H, CH_3, CH_3O, octyl and nonyl;

(B) a metal deactivator; and

(C) a metal compound wherein the metal compound is a metal or a metal salt, said metal salt being soluble in the lubricating fluid wherein (A) is present in amounts of from about 0.5 to 5.0 parts per 100 parts oil, (B) is present in amounts of about 0.05 to about 1.0 part by weight per 100 parts of oil, and (C) is present in an amount of from 1 to about 25 parts of metal per million parts of oil.

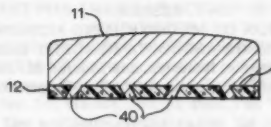
4,335,007

SOAP BAR

Dovie A. Owens, Rte. 2, Box 460, Fulton, Miss. 38843

Filed 1981, Ser. No. 240,543
Int. Cl.³ C11D *17/00, 17/04*
U.S. Cl. 252—92 1 Claim

1. A soap cake comprising a base member formed of a water stable material, said base member having a top surface, a plurality of surface interruptions formed in said top surface extending into said base member, said surface interruptions having wall portions extending into said base member at a non-perpendicular angle to the surface, a soap bar formed above said base on said base having portions thereof extending into said surface interruptions and filling said surface interruptions, said



surface interruptions formed as bores extending into the base having bore walls lying at a non-perpendicular angle to the base, a first plurality of said bores having walls lying at a first angle to the perpendicular to the base and a second plurality of said bores having walls lying at a second angle to the perpendicular to said base, said second angle being different than said first angle and opposed thereto.

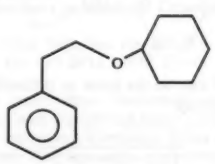
4,335,008

PROCESS FOR AUGMENTING OR ENHANCING THE AROMA OF DETERGENTS USING CYCLOHEXYL PHENETHYLETHER

Jacob Kiwala, Brooklyn, N.Y.; Richard J. Tokarzewski, Keyport, N.J.; Frederick L. Schmitt, Holmdel, N.J., and Mark A. Sprecker, Sea Bright, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 192,238, Sep. 30, 1980, Pat. No. 4,306,096. This application 1981, Ser. No. 267,900
Int. Cl.³ C11D *3/50*
U.S. Cl. 252—174.11 1 Claim

1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic, or zwitterionic, detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base an aroma augmenting or enhancing quantity of cyclohexyl phenethylether having the structure:



4,335,009

MIXTURE OF ALIPHATIC C_{10} BRANCHED OLEFIN EPOXIDES AND USE THEREOF IN AUGMENTING OR ENHANCING THE AROMA OF PERFUMES AND/OR ARTICLES

Richard M. Boden, Monmouth Beach; Lambert Dekker, Wyckoff; Frederick L. Schmitt, Holmdel, all of N.J., and Augustinus G. Van Loveren, Rye, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Continuation-in-part of Ser. No. 160,788, Jun. 19, 1980, Pat. No. 4,287,084. This application 1980, Ser. No. 195,630
Int. Cl.³ C11D *3/395, 3/39, 7/54*
U.S. Cl. 252—187.27 2 Claims

1. A process for augmenting or enhancing the aroma of a liquid bleach containing a hypochlorite ion comprising the step of adding to a liquid bleach composition one or more diisoamylene epoxide-containing compositions produced by the steps of (i) reacting two moles of isoamylene in the presence of an acid catalyst to produce a diisoamylene composition and (ii) epoxi-

dizing the resulting diisoamylene with a peracid to produce a diisoamylene epoxide-containing composition, said diisoamylene epoxide-containing composition being in an organoleptic property modifying amount.

4,335,010

PREPARATION OF MUCONIC ACID MONONITRILES AND COPPER(II)-AMMONIA REAGENT THEREFOR

Timothy R. Demmin, Randolph, and Milorad M. Rogic, Whippany, both of N.J., assignors to Allied Corporation, Morristown, N.J.

Division of Ser. No. 74,442, Sep. 11, 1979, Pat. No. 4,277,419, which is a continuation-in-part of Ser. No. 942,507, Sep. 15, 1978, abandoned. This application 1981, Ser. No. 230,761

Int. Cl.³ C01G *3/14;* **C07C** *120/00*

U.S. Cl. 252—189 **13 Claims**

1. A method of forming a copper(II)-ammonia reagent which comprises oxidizing a soluble cuprous salt with oxygen in an organic solvent containing a nitrogen with an unshared electron pair and reacting the product with ammonia or ammonium hydroxide.

4,335,011

CYCLOHEXYL-DIOXANE LIQUID CRYSTALLINE COMPOUNDS

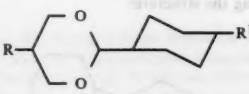
Nicholas L. Sethofer, San Jose, Calif., assignor to Timex Corporation, Waterbury, Conn.

Division of Ser. No. 135,381, Mar. 28, 1980, Pat. No. 4,298,528. This application 1981, Ser. No. 268,464

Int. Cl.³ C09K *3/34;* **G02F** *1/13;* **C07D** *319/04*

U.S. Cl. 252—299.1 **7 Claims**

1. In an electrooptical display including a liquid crystalline material, the improvement wherein the liquid crystalline material comprises a compound of the formula:



where R and R^1 can be the same or different straight chain alkyl or alkoxy group.

4,335,012

5-SUBSTITUTED-2-(4-CYANOPHENYL)-1,3-DIOXANES

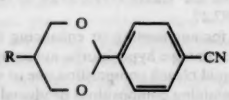
Howard Sorkin, Berkeley Heights, N.J., assignor to Timex Corporation, Waterbury, Conn.

Division of Ser. No. 136,855, Apr. 3, 1980, Pat. No. 4,322,354, which is a continuation-in-part of Ser. No. 17,635, Mar. 5, 1979, abandoned. This application 1981, Ser. No. 280,762

Int. Cl.³ C09K *3/34;* **C02F** *1/13*

U.S. Cl. 252—299.61 **3 Claims**

1. In an electrooptical display including a liquid crystalline material, the improvement wherein the liquid crystalline material comprises a compound of the formula:



where R is an alkyl group.

4,335,013

SOLVENTS USEFUL IN PRESSURE-SENSITIVE MARK-RECORDING SYSTEMS

Pierre J. Aliart, Brussels, and Claude A. Guillaume, Jodoigne, both of Belgium, assignors to Monsano Company, St. Louis, Mo.

Filed 1980, Ser. No. 179,414

Claims priority, application United Kingdom, 1979, 7929565

Int. Cl.³ B01F *1/00*

U.S. Cl. 252—364 **11 Claims**

1. A solvent suitable for use in a pressure-sensitive mark-recording system, said solvent comprising a blend of an aromatic hydrocarbon component and a diester component, the former being a hydrocarbon in which at least half the carbon atoms are benzenoid or a mixture of such hydrocarbons, characterized in that the diester component is a diester of either of the formulas

$$ROOC(C_nH_{2n})COOR^1 \text{ or } R^2COO(C_nH_{2n})OOCR^3$$

wherein n is an integer from 1 to 20, R is an aliphatic hydrocarbon group containing up to 18 carbon atoms or a cycloaliphatic hydrocarbon group containing from 5 to 10 carbon atoms and R^1 is an aliphatic hydrocarbon group containing up to 18 carbon atoms or a cycloaliphatic hydrocarbon group containing from 5 to 10 carbon atoms or a benzyl group or an alkylbenzyl group containing up to 3 carbon atoms substituted onto the benzene nucleus and each of R^2 and R^3 is an aliphatic hydrocarbon group containing up to 18 carbon atoms or a mixture of such diesters, and the weight ratio of the aromatic hydrocarbon component to the diester component in the blend is from 85:15 to 10:90.

4,335,014

PROCESS FOR IMPROVING THE ACTIVITY OF SUPPORTED SILVER CATALYSTS

Josef Alfranseder, Marktl; Sigmund Mayer, Burgkirchen; Siegfried Rebsdat, Burg; Josef Riedl, Burgkirchen, and Iwo Schaffelhofer, Burghausen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed 1980, Ser. No. 188,237

Claims priority, application Fed. Rep. of Germany, 1979, 2938245

Int. Cl.³ B01J *23/96, 23/48*

U.S. Cl. 252—412 **2 Claims**

1. In the process for improving the activity of used supported silver catalysts used in the direct oxidation of ethylene to ethylene oxide by means of molecular oxygen or air in which the used catalyst is (a) firstly washed with an inert liquid and (b) on the washed catalyst is then deposited 1 to 1,000 parts, per 1 million parts of catalyst, of cesium, rubidium or a mixture thereof: the improvement which comprises using as said inert washing liquid a solution consisting of 10 to 50 percent by weight of water, 30 to 89 percent by weight of an aliphatic alcohol having 1 to 6 carbon atoms or an aliphatic ketone having 3 to 10 carbon atoms and 1 to 20 percent by weight of an amine selected from the group consisting of propylamine, butylamine, secondary butylamine, monoethanolamine, and ethylenediamine, the percentages by weight being in each case relative to the solution.

2. In the process for improving the activity of used supported silver catalyst used in the direct oxidation of ethylene to ethylene oxide by means of molecular oxygen or air in which the used catalyst is (a) firstly washed with an inert liquid and (b) on the washed catalyst is then deposited 1 to 1,000 parts, per 1 million parts of catalyst, of cesium, rubidium or a mixture thereof: the improvement which comprises using as said inert washing liquid a solution consisting of

(a) an aqueous ammonia solution or an alcoholic ammonia solution having an NH_3 concentration of 1 to 10 percent by weight; or

(b) an aqueous alcoholic ammonia solution or an aqueous

ketonic ammonia solution having an NH_3 concentration of 1 to 10 percent by weight, a water concentration of 10 to 50 percent by weight and a concentration of alcohol or ketone of 40 to 89 percent by weight, the percentage by weight in each case relating to the solution; the alcohol in (a) and (b) being an aliphatic alcohol having 1 to 6 carbon atoms and the ketone in (b) being an aliphatic ketone having 3 to 10 carbon atoms.

4,335,015

CATALYST COMPONENT FOR POLYMERIZATION OF ALPHA-OLEFINS AND METHOD OF USING IT

Masafumi Imai, Ooi; Hiroshi Ueno, Namekawa, and Naomi Inaba, Ooi, all of Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 161,978

Claims priority, application Japan, 1979, 54/93681

Int. Cl.³ C08F *4/64*

U.S. Cl. 252—429 B **26 Claims**

1. A supported titanium-containing catalyst component adaptable for use in the polymerization of alpha-olefins comprising a solid component which has been co-pulverized with and/or subjected to contacting treatment by forming a slurry in the presence of an inert hydrocarbon with a mixture comprising an organoaluminum compound and an electron donor compound, said solid component comprising co-pulverized and/or slurry contacted magnesium halide and a titanium halide treated under activating conditions with a halogen compound.

4,335,016

CATALYST AND METHOD

Robert A. Dombro, Clinton, Iowa, assignor to Chemplex Company, Rolling Meadows, Ill.

Filed 1981, Ser. No. 237,297

Int. Cl.³ C08F *4/06, 4/16*

U.S. Cl. 252—429 B **14 Claims**

1. A catalyst prepared by (1) forming a mixture of a finely divided porous support comprising silica, alumina, zirconia, thoria, or magnesia or mixtures thereof and an alkyl magnesium compound; (2) heating said mixture for a time and at a temperature sufficient to react said support and said alkyl magnesium compound; (3) reacting, by heating, the product of (2) with a hydrocarbylhydrocarbyloxysilane; (4) reacting, by heating, the product of (3) with a titanium compound that contains a halide; or (5) reacting the product of (2) with the reaction product of a hydrocarbylhydrocarbyloxysilane and a titanium compound that contains halide; and (6) activating the catalyst product of (4) or (5) with a cocatalyst comprising hydrogen or an alkyl lithium, alkyl magnesium, alkyl aluminum, alkyl aluminum halide or alkyl zinc.

4,335,017

COMPOSITE MATERIALS COMPRISING DEFORMABLE XEROGEL WITHIN THE PORES OF PARTICULATE RIGID SUPPORTS USEFUL IN CHROMATOGRAPHY

Brynley J. Miles, Cirencester, and Alan Rosevear, Faringdon, both of England, assignors to United Kingdom Atomic Energy Authority, Oxfordshire, England

Continuation-in-part of Ser. No. 750,706, Dec. 15, 1976, abandoned. This application 1977, Ser. No. 858,798

Claims priority, application United Kingdom, 1975, 51345/75; 1976, 52432/76; 1976, 52433/76

Int. Cl.³ B01J *20/32, 20/26, 20/14;* B01D *15/08;* B01J *31/06;* B01J *31/02;* B01J *21/08*

U.S. Cl. 252—430 **40 Claims**

1. A particulate material comprising a plurality of discrete porous rigid support particles and a deformable xerogel retained within and substantially filling the pore structure of the support particles, said deformable xerogel being capable of sorbing chemical species from solution.

13. A composite material as claimed in claim **1** wherein a component of the deformable xerogel is a polysaccharide gel or a synthetic polymer gel.

15. A composite material as claimed in claim **13** wherein the synthetic polymer gel is a polymer of an acrylate or a polyvinyl alcohol polymer gel.

4,335,018

CATALYST FOR THE PRODUCTION OF MALEIC ANHYDRIDE

Gerhard Franz; Franz Nierlich, and Hans-Josef Ratajczak, all of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Division of Ser. No. 114,448, Jan. 22, 1980, Pat. No. 4,268,448. This application 1980, Ser. No. 202,281

Claims priority, application Fed. Rep. of Germany, 1979, 2902986

Int. Cl.³ B01J *27/14, 29/00*

U.S. Cl. 252—435 **13 Claims**

1. A catalyst, suitable for the catalyzed oxidation of ethylenically unsaturated C_4-n-hydrocarbons to maleic anhydride, of the formula

$$W_aMo_bSb_cY_dX_eO_x$$

wherein Y represents phosphorus and/or silicon; X is at least one of vanadium, bismuth, tellurium and an alkali metal; a and b are each independently a number from 1 to 12; c is a number from 2 to 20; d is a number from 0.2 to 2; e is a number from 0 to 10; and x is the number of oxygen atoms required to satisfy the remaining valences of the other elements present, which catalyst is produced by mixing a compound of trivalent antimony and, when e is other than 0, at least one of a vanadium, bismuth, tellurium and alkali metal compound, with a solution of a mixture of the heteropoly acids of molybdenum and of tungsten to form a blue, gel-like precursor, drying, and then calcining.

4,335,019

PREPARATION OF NATURAL FERRIERITE HYDROCRACKING CATALYST AND HYDROCARBON CONVERSION WITH CATALYST

Emmerson Bowes, Woodstown, and Bruce P. Pelrine, Trenton, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1981, Ser. No. 225,079

Int. Cl.³ B01J *29/30, 37/00*

U.S. Cl. 252—450 **12 Claims**

1. A catalyst composition comprising natural ferrierite treated by contact with oxalate ion under conditions effective to impart to said ferrierite a Constraint Index from about 1 to 12, and at least one hydrogenation component selected from the metals of Group VIA and Group VIII of the periodic table.

2. The composition described in claim **1** wherein said contacting comprises first contacting said ferrierite with oxalic acid and then contacting the resultant oxalic acid treated-ferrierite with an aqueous diammonium oxalate solution.

4,335,020

METHOD OF PREPARATION OF COMPOSITE ZEOLITE CATALYSTS

Pochen Chu, West Deptford, N.J.; Francis G. Dwyer, West Chester, and Albin Huss, Chadds Ford, both of Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1981, Ser. No. 222,848

Int. Cl.³ B01J *29/06, 29/28*

U.S. Cl. 252—455 Z **23 Claims**

1. A method of removing organic species from an organic cation-containing zeolite to improve the dispersive properties thereof, in turn, resulting in catalysts of enhanced catalytic and physical properties which comprises contacting said zeolite with a solution of a compound having a standard oxidation potential of at least 0.25 volt for a period of time sufficient to

effect oxidation of said organic cation, said contact being conducted at temperatures below 100° F.

11. A method according to claim 1 wherein said compound is a hypochlorite.

4,335,021
CATALYST REGENERATION

Dwight L. McKay, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed 1980, Ser. No. 117,927
Int. Cl.³ B01J *21/12, 29/16, 29/38*
U.S. Cl. 252—455 R **5 Claims**

1. In a combustion process wherein carbonaceous material on silica or silica/alumina base cracking catalyst particles containing both manganese and antimony is at least partly removed by contacting the catalyst particles with a free oxygen containing gas

the improvement comprising carrying out said combustion process at a temperature in the range of 1260° to 1280° F. in order to achieve a high CO_2/CO ratio in the combustion gas.

4. A cracking catalyst useful for the cracking of hydrocarbons in the absence of added hydrogen and being based upon silica or silica/alumina containing both manganese and antimony in a weight ratio of 2:1 to 1:2.

5. A catalyst in accordance with claim 4 comprising a zeolite modified silica or silica/alumina material being rare earth ion exchanged and containing both manganese and antimony in a weight ratio of 2:1 to 1:2.

4,335,022
MODIFIED SILICA COMPOSITION

Lynn H. Slaugh, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 61,205, Jul. 27, 1979, abandoned. This application 1980, Ser. No. 219,279
Int. Cl.³ B01J *21/12*
U.S. Cl. 252—455 R **12 Claims**

1. A process for preparing a siliceous composition which comprises impregnating a substantially dehydrated amorphorous silica gel with aluminum hydride dissolved in an anhydrous, non-hydroxyl containing organic solvent, drying the impregnated silica to remove the solvent and subsequently heating the impregnated silica at a temperature of about 300° to about 900° C. in a non-oxidizing atmosphere.

5. The process of claim 1 wherein the impregnated silica before heating contains from about 1 to about 10 percent by weight of aluminum hydride measured as the metal.

6. The process of claim 5 wherein the aluminum hydride is $AlH_3.\frac{1}{2}(CH_3CH_2)_2O$ dissolved in tetrahydrofuran or diethyl ether.

4,335,023
MONOLITHIC CATALYST MEMBER AND SUPPORT THEREFOR

Joseph C. Dettling, Jackson; John J. Mooney, Wyckoff; Robert M. Skomoroski, Paterson, and Saul G. Hindin, Mendham, all of N.J., assignors to Engelhard Corporation, Iselin, N.J.

Filed 1980, Ser. No. 114,807
Int. Cl.³ B01J *21/04, 23/40, 35/04*
U.S. Cl. 252—466 PT **32 Claims**

1. In a carrier member adapted to have a catalytic promoting material deposited as a coating thereon and comprising a monolithic body having opposite end faces, a plurality of fluid flow channels extending through said body from one of said end faces to the other to provide fluid flow communication through said body, said channels being formed by channel walls dimensioned and configured to define along their length a nominally polygonal shaped cross section profile of said channels, the improvement comprising that the juncture of adjacent walls within said channels are formed by fillet portions of said walls, said fillet portions extending along the length of said channels and defining in cross section concave profiles of a depth sufficient to extend at least to the midpoint of a segment of a circle taken as disposed tangentially with respect to the two channel walls whose juncture is provided by said fillet and which segment subtends between about 1.5% to 40% of the nominal width of each of the two channel walls adjacent to said juncture.

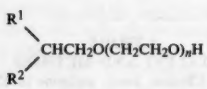
4,335,024
LIQUID DETERGENT COMPOSITIONS COMPRISED OF MIXTURES OF ALKYL POLYGLYCOL ETHERS AND QUATERNARY AMMONIUM COMPOUNDS

Manfred Hennemann, Hilden; Albrecht Loehr, Eggerscheid; Peter Krings, Krefeld, and Rudolf Weber, Düsseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Continuation of Ser. No. 32,462, Apr. 23, 1979, abandoned. This application 1981, Ser. No. 243,431
Claims priority, application Fed. Rep. of Germany, 1978, 2824024
Int. Cl.³ C11D *1/835, 1/62;* **D06M** *13/46*
U.S. Cl. 252—545 **11 Claims**

1. A liquid detergent composition comprised of:

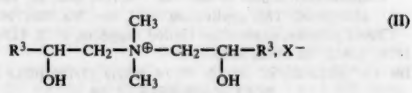
(a) from about 5 to 18% by weight of a mixture of alkyl polyglycol ethers of the formula


(I)

wherein R^1 represents a linear alkyl radical; R^2, in from about 20 to 75% of said alkyl polyglycol ethers, represents a C_1 to C_4 alkyl group and, in from about 25 to 80% of said alkyl polyglycol ethers, represents a hydrogen atom, the total number of carbon atoms in R^1 and R^2 together being from about 11 to 15; and n represents an average value of from about 5 to 9, n being a value such that the ethylene oxide content represents from about 50 to 65% by weight, based on the total weight of the mixture of alkyl polyglycol ethers;

(b) from about 5 to 18% by weight of a mixture of polyglycol ethers of Formula I, wherein R^1 represents a linear alkyl radical; R^2 is a hydrogen atom or, in from about 20 to 75% of said alkyl polyglycol ethers, represents a C_1 to C_4 alkyl group and, in from about 25 to 80% of said alkyl polyglycol ethers, represents a hydrogen atom, the total number of carbon atoms in R^1 and R^2 together being from about 6 to 10; and n represents an average value of from about 3 to 8, n being of such a value that the ethylene oxide content represents from about 55 to 70% by weight, based on the total weight of the mixture of alkyl polyglycol ethers, the quantitative ratio of (a) to (b) being from about 2:1 to 1:2, and

(c) from about 2.5 to 10% by weight, of a compound of the formula


(II)

wherein R^3 represents a linear or branched alkyl radical having substantially from about 14 to 16 carbon atoms and X^- represents an anion selected from the group comprised of chloro, bromo, methyl sulfato, ethyl sulfato, methane sulfonato, ethane sulfonato, and toluene sulfonato groups, or a mixture of the compounds.

4,335,025

PROCESS FOR THE PREPARATION OF SYNTHETIC DETERGENT BARS, AND PRODUCTS PRODUCED THEREBY

Graham Barker, Fair Lawn; Leopold Safrin, East Orange, and Martin J. Barabash, Montvale, all of N.J., assignors to Witco Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 122,538, Feb. 19, 1980, abandoned. This application 1981, Ser. No. 239,931

Int. Cl.³ C11D *1/04, 1/12, 11/04, 17/00*

U.S. Cl. 252—550 13 Claims

1. A process for in situ preparation of synthetic detergent compositions suitable for direct utilization in the processing of syndet bars having improved soap-like properties which comprises blending, at elevated temperatures and at a controlled rate, about a stoichiometric amount of a C_8–C_{16} alkyl monoester of butenedioic acid with an alkali metal sulfite in an aqueous dispersion of a water-soluble anionic surfactant in a molten waxy extender, the water concentration being between about 5 and about 12 percent, by weight, based upon the total weight of the reaction mass, said mass being kept fluid throughout the reaction and maintained at a temperature below about 85° C.; and, likewise based upon the total weight of the reaction mass, the surfactant being present in the concentration of about 4 to about 20 percent, and the waxy extender in the concentration of about 18 to about 45 percent, the anionic surfactant being selected from water-soluble alkali metal salts of C_{12}–C_{14} alkaryl sulfonate, C_{14}–C_{16} olefin sulfonate, C_{10}–C_{16} acyl isethionate, C_{10}–C_{16} alkyl sulfoacetate, C_{12}–C_{16} alkyl sulfate, C_{12}–C_{14} alkane sulfonate, and mixtures thereof; and recovering resulting mono-alkyl sulfocsuccinate-containing syndet composition.

4,335,026

PRESSURE-SENSITIVE ADHESIVE COMPOSITIONS HAVING HIGH SHEAR AND LOW PEEL RESISTANCE

Ivan J. Balinth, Cranford, N.J., assignor to Johnson & Johnson Products Inc., New Brunswick, N.J.

Filed 1981, Ser. No. 248,595

Int. Cl.³ C08L *7/02*

U.S. Cl. 524—271 14 Claims

1. A pressure-sensitive adhesive composition comprising (1) from about 25% to about 42% by weight of the total composition of an elastomeric blend consisting of a rubber and an olefin terpolymer of ethylene, propylene and 1,4-hexadiene, wherein the weight ratio of ethylene monomer to propylene monomer is approximately 3:1 and said hexadiene is present in an amount of from about 1% to about 8% by weight, having a modulus, M_{60}, at 60% elongation of from about 1 to about 1.5 megapascals and a polydisparity of up to about 10, the weight ratio of said natural rubber to said terpolymer in said blend being from about 7.5:1 to about 2:1; (2) from about 5% to about 15% by weight of the total composition of a liquid plasticizer component selected from the group consisting of isomeric liquid polybutenes, mineral oils, low molecular weight polyterpenes, low viscosity rosins and mixtures thereof, with the proviso that when mineral oil is utilized, it comprises no more than 50% of the liquid plasticizer component; (3) from about 12% to about 20% by weight of the total composition of a reinforcing filler; and (4) from about 30% to 50% by weight of the total composition of a solid tackifier component, selected from the group consisting of normally solid polyterpenes, solid rosins and mixtures thereof, said pressure-sensitive adhesive composition having a Williams plasticity of from about 2 mm to about 3 mm.

4,335,027

AIR-DRIABLE ALKYD RESINS AND PROCESS FOR THEIR PREPARATION

George E. Cremeans, Groveport, and Richard A. Markle, Columbus, both of Ohio, assignors to Battelle Development Corporation, Columbus, Ohio

Filed 1981, Ser. No. 257,532

Int. Cl.³ C09D *3/28, 3/58, 3/64*

U.S. Cl. 528—281 26 Claims

1. A process for preparing an air-driable alkyd resin which comprises polymerizing an anhydride of a dicarboxylic acid with a glycidyl compound selected from the group comprising glycidyl esters of primary fatty acids, at least part of said esters having at least two —CH=CH— linkages in the fatty acid residue thereof not $\alpha'\beta$ to the carboxyl group residue, mixtures of said glycidyl ester and glycidyl ether, and mixtures of said glycidyl ester and epichlorohydrin.

4,335,028

CATHODIC ELECTROCOATING COMPOSITIONS CONTAINING BASE-FUNCTIONAL GRAFT POLYMERS HAVING EPOXY RESIN BACKBONES, AND SUBSTRATES COATED THEREWITH

Vincent W. Ting, Boulder, Colo.; James T. K. Woo, Medina, and David A. Borovicka, Sr., Parma, both of Ohio, assignors to SCM Corporation, New York, N.Y.

Filed 1980, Ser. No. 188,996

Int. Cl.³ C08L *63/00*

U.S. Cl. 524—504 32 Claims

1. A coating composition of matter comprising a graft polymer, an ungrafted epoxy polymer, and ungrafted addition polymer, said graft polymer having as one component a 1,2-epoxy resin that has aliphatic backbone carbons that in the ungrafted state have one or two hydrogens bonded thereto, and as another component, at least one addition polymer component of polymerized ethylenic monomers wherein said addition polymer component is grafted by carbon-to-carbon bonding to at least one of said aliphatic backbone carbons of the said 1,2-epoxy resin, said graft polymer having in said addition polymer component copolymerized ethylenically unsaturated amine monomer to provide at least one base-reacting amine group that renders the graft polymer base-functional and said composition having a Base Number of at least 20.

4,335,029

AQUEOUS POLYURETHANE COMPOSITIONS

Shmuel Dabi, Fair Lawn; Peter Loewrigkeit, Wyckoff, and Kenneth A. Van Dyk, Stockholm, all of N.J., assignors to Witco Chemical Corporation, New York, N.Y.

Filed 1980, Ser. No. 216,721

Int. Cl.³ C08L *75/06*

U.S. Cl. 524—589 18 Claims

1. A stable aqueous dispersion of a room temperature curing polurethane forming films resistant to water and organic solvents, prepared by

a. dispersing in water an NCO-terminated polyurethane prepolymer containing units derived from melamine in the prepolymer chain and pendant water-dispersing carboxylic salt groups,

b. chain extending the dispersed prepolymer by mixing into the dispersion an aliphatic polyamine chain extender more reactive with NCO groups than water,

c. end capping the resulting dispersed polyurethane by mixing into the dispersion an organic dihydrazide, and

d. reacting the resulting dispersed end capped polyurethane by mixing formaldehyde into the dispersion to convert hydrazide end caps into N-methylol groups;

the resulting N-methylol terminated polyurethane containing about 1% to about 5% by weight of units derived from melamine.

4,335,030

AQUEOUS DISPERSION OF FLUOROPOLYMERS IN COMBINATION WITH EPOXY-TYPE FILM FORMERS

Thomas P. Concannon, Newtown Square, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 279,162
Int. Cl.³ C08K 5/17
U.S. Cl. 523—408 31 Claims

1. An aqueous coating composition having a dispersed phase which consists essentially of:

(A) 90 to 10% by weight, based on the weight of (A) plus (B), of the reaction product of:

(1) at least 50%, based on the weight of (1) plus (2), of an epoxy resin containing, on the average, two terminal 1,2-epoxy groups per molecule and having an epoxy equivalent weight of 750–5000;

(2) a carboxyl-functional polymer in an amount sufficient to provide at least 2.50 equivalents of carboxyl groups, when the source of the carboxyl group is a mono-protic acid, and at least 4.0 equivalents of carboxyl groups, when the source of such groups is a diprotic acid, per equivalent of 1,2-epoxy groups in the epoxy resin, said polymer having a weight average molecular weight (determined by light scattering) of about 10,000–50,000 and an acid number of 200–500;

(3) an aqueous solution of at least 1.50 equivalents of a tertiary amine per equivalent of 1,2-epoxy groups in the epoxy resin, said tertiary amine being selected from the group consisting of $R_1R_2R_3N$, pyridine, N-methylpyrrole, N-methyl piperidine, N-methyl pyrrolidine, N-methyl morpholine, and mixtures thereof and wherein R_1 and R_2 are substituted or unsubstituted monovalent alkyl groups containing one or two carbon atoms in the alkyl portion and R_3 is a substituted or unsubstituted monovalent alkyl group containing 1–4 carbon atoms; and

(4) 10–90% of the amount required for stoichiometric reaction with the carboxyl-functional polymer of (2), of at least one primary, secondary or tertiary amine or monofunctional quaternary ammonium hydroxide, such that the pH of the reaction product of (A) is greater than 8.5;

Y being at least about $6+0.75\ (2^X)$, where Y is the milliequivalent of carboxyl groups neutralized by primary, secondary or tertiary amine or monofunctional quaternary ammonium hydroxide per 100 grams of acid polymer plus epoxy, and X is the epoxy equivalent weight divided by 1000;

and wherein for increasing ratios of carboxyl groups to 1,2-epoxy groups, the amount of amine is increased to keep the carboxyl-functional polymer water dispersible;

(B) 10–90% by weight, based on the weight of (A) plus (B), of a fluorocarbon polymer; and

(C) optionally, up to 20% by weight, based on the weight of (A), of a nitrogen or phenolic cross-linking agent.

4,335,031

ELECTROCOATING COMPOSITION WITH POLYHYDROXYAMINE AND POLYBUTADIENE

Isidor Hazan, Clementon, N.J., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 106,254, Dec. 21, 1979, abandoned. This application 1980, Ser. No. 220,953
Int. Cl.³ C08L 29/02, 39/00
U.S. Cl. 524—504 11 Claims

1. An aqueous cathodic electrodeposition coating composition comprising a first polymer, a second polymer, enough of an organic acid to give the composition a pH about in the range of 6 to 7, and optionally a nitrogen resin crosslinker, said coating composition containing, by weight based on the first and second polymers, about 20–70% of a first polymer which is a copolymer comprising a backbone and a graft pendent to the backbone, said backbone containing amine functional groups and hydroxy functional groups, characterized in that said backbone contains at least about 0.13 equivalent of amine groups per 100 grams of first polymer and at least about 0.03 equivalent of hydroxyl groups per 100 grams of first polymer, and containing, by weight, the equivalent of about:

(a) 35–90% amine functional monomers,

(b) 10–60% hydroxy functional monomers,

(c) 0–40% nonfunctional acrylic or methacrylic monomers, and

(d) 0–5% chain-terminating monomers

the total of (a), (b), (c) and (d) being 100% of said backbone, said graft comprising a monoglycidyl ester of at least one tertiary carboxylic acid containing 9–20 carbon atoms and being grafted to said amine groups in said backbone, said copolymer containing about 1–30% by weight of said graft, and, by weight based on the first and second polymers, about 80–30% of a second polymer which is polybutadiene.

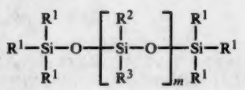
4,335,032

POLYCARBONATE RESIN IMPACT MODIFIED WITH POLYOLEFINS AND CONTAINING POLYORGANOSILOXANE FLUIDS

Niles R. Rosenquist, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed 1980, Ser. No. 221,934
Int. Cl.³ C08L 69/00
U.S. Cl. 524—269 9 Claims

1. A polycarbonate composition comprising in admixture a high molecular weight aromatic carbonate polymer and a minor amount of a polyolefin and a polyorganosiloxane of the following formula:



wherein R^1 is a radical selected from the group consisting of alkyl, haloalkyl, aryl, aralkyl, alkaryl, alkoxy, aryloxy, and halogenated derivatives of the aforesaid aryl, aralkyl, alkaryl, alkoxy or aryloxy radicals; R^2 and R^3 are radicals selected from the group consisting of straight chain or branched lower alkyl radicals containing from 1 to about 10 carbon atoms and phenyl radicals; and m is an integer of such value that the polyorganosiloxane is a fluid at ambient temperatures.

4,335,033

ERASER AND PROCESS FOR ITS MANUFACTURE

Werner Handl, Altdorf, Fed. Rep. of Germany, assignor to J. S. Staedtler, Nuremberg, Fed. Rep. of Germany

Filed 1979, Ser. No. 67,001
Claims priority, application Fed. Rep. of Germany, 1978, 2837159
Int. Cl.³ C08K 5/10
U.S. Cl. 524—525 6 Claims

6. An eraser consisting essentially of 30 to 60 parts by weight of polyvinyl chloride, 10 to 20 percent of a softener, 10 to 40 percent of a filler and 10 to 60 percent of a cross-linked natural or synthetic rubber in the form of particles embedded in and distributed throughout the polyvinyl chloride.

4,335,034

THERMOPLASTIC COMPOSITIONS AND AUTOMOTIVE CARPETING BACKED THEREWITH

Joseph L. Zuckerman, Livingston, and John W. Bzik, North Haledon, both of N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.

Division of Ser. No. 970,693, Dec. 18, 1978, Pat. No. 4,242,395. This application 1980, Ser. No. 149,091

Int. Cl.[3] C08K *3/24, 3/26, 5/01;* C08L *9/00*

U.S. Cl. 524—423 6 Claims

1. A thermoplastic composition useful as a backing material for carpeting, said thermoplastic composition consisting of by weight:

(a) About 5–25 percent of an ethylene containing polymer which is polyethylene or an ethylene/mono-unsaturated ester copolymer having a melt index of about 1 to 10,

(b) About 1–10 percent of a non-vulcanized elastomer having a Mooney viscosity of about 20–90, which is a styrene-butadiene rubber, polybutylene, a nitrile-butadiene rubber, a copolymer of ethylene and propylene or a terpolymer of ethylene, propylene and a minor amount of a diene monomer or mixtures thereof, and the diene is selected from the class consisting of 1,4-pentadiene, 2-methyl-1, 4-pentadiene, 1,5-hexadiene, 1,4-hexadiene, 2-methyl-1, 5-hexadiene, dicyclopentadiene, norbornadiene, methylenenorbornene and 1,5-cyclooctadiene.

(c) About 60–90 percent of an inert mineral filler, and

(d) About 1–15 percent of a plasticizer for the ethylene containing polymer selected from the class consisting of hydrocarbon oils and polyvinyl chloride plasticizers.

4,335,035

SILICONE RUBBER COMPOSITION

Masayuki Hatanaka, Ouramachi, and Atsushi Kurita, Ohta, both of Japan, assignors to Toshiba Silicone Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 173,523

Claims priority, application Japan, 1979, 54-116499

Int. Cl.[3] C08L *83/06;* C08G *77/12*

U.S. Cl. 523—212 12 Claims

1. A silicone rubber composition consisting essentially of

(A) 100 parts by weight of polyorganosiloxane having the formula:

$$\left[R_a^1SiO_{\frac{4-a}{2}}\right]_n$$

wherein R^1 is a substituted or unsubstituted monovalent hydrocarbon group, with the proviso that from 0.01 to 0.3% of the total R^1 groups are vinyl groups, a is a number of from 1.98 to 2.001, and n is a number of at least 3,000,

(B) 10 to 100 parts by weight of finely divided silica,

(C) from more than 5 parts by weight up to 20 parts by weight of polyorganohydrogensiloxane having the formula:

$$\left[R_b^2H_cSiO_{\frac{4-(b+c)}{2}}\right]_m$$

wherein R^2 is a substituted or unsubstituted monovalent hydrocarbon group with the proviso that from 0.2 to 2.5% of the total R^2 groups are vinyl groups, b is a number of from 1.5 to 2.0, c is a number of from 0.01 to 0.5, the value of (b+c) is in the range of from 1.8 to 2.1, and m is a number of from 30 to 3,000, and

(D) 0.01 to 3 parts by weight of an organic peroxide effective for curing silicone rubber compositions.

4,335,036

PLASTICIZED POLYVINYL BUTYRAL EMPLOYING PROPYLENE OXIDE OLIGOMERS

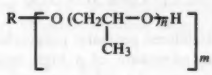
Peter A. Fowell, Chadds Ford, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 154,852

Int. Cl.[3] C08F *16/34, 16/06;* C08K *5/05;* C03C *27/12*

U.S. Cl. 524—376 8 Claims

1. Plasticized polyvinyl butyral compositions comprising polyvinyl butyral having a hydroxyl content of about from 15–30% by weight, calculated as vinyl alcohol, and, in compatible admixture therewith, about from 10 to 70 parts per hundred parts weight of resin of at least one propylene oxide oligomer of the general formula



wherein R is a linear or branched aliphatic, cycloaliphatic, aralkyl, aromatic, alkoxy alkyl or heterocyclic radical of 1 to 14 carbon atoms, n is an integer of 1 to 30 and has an average value of about from 1 to 20, and m is an integer of from 1 to 3, and wherein the oligomer has an average molecular weight of about from 300 to 2500.

4,335,037

BLEND OF STYRENE-MALEIC ANHYDRIDE AND HIGH IMPACT POLYSTYRENE

Frank E. Lordi, West Chester, and Peter S. Francis, Rose Valley, both of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed 1981, Ser. No. 247,689

Int. Cl.[3] C08L *51/00;* C08K *3/40*

U.S. Cl. 524—504 2 Claims

1. A molding composition of a hotworked blend of A and B as follows:

A. from about 75 to 95% of a styrene-maleic anhydride interpolymer resin consisting essentially of the product of copolymerizing

(a) from about 80 to about 94% styrene

(b) from about 5 to about 15% maleic anhydride, and,

(c) from about 1 to about 5% rubber;

B. from about 5 to 25% of a high impact polystyrene consisting of a radial block graft interpolymer of alkadiene and styrene, the alkadiene contact being from about 4 to 16% and the styrene content being from about 84 to 96%, and the average molecular weight of such high impact polymer being at least 20% greater than the molecular weight of said styrene-maleic anhydride interpolymer resin

said blend having outstanding green toughness, whereby molded parts are removed from molds with less breakage than for some conventional molding compositions lacking high impact polystyrene, said blended composition having heat resistance superior to conventional molding compositions lacking the maleic anhydride component.

4,335,038

POLYCARBONATE CONTAINING A METAL PERFLUOROBORATE AND AN ORGANOSILANE AS IGNITION DEPRESSANTS

Lowell S. Thomas, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed 1980, Ser. No. 191,207

Int. Cl.[3] C08K *3/38, 5/54*

U.S. Cl. 524—188 4 Claims

1. A composition comprising a carbonate polymer having dispersed therein an alkali metal perfluoroborate and an organosilane wherein the alkali metal perfluoroborate is employed in an amount sufficient to retard combustion when the composition is exposed to a low temperature ignition source

and the organosilane is employed in an amount sufficient to enhance the ability of the alkali metal perfluoroborate to reduce the combustibility of the composition.

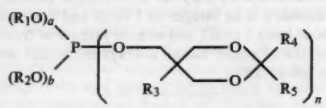
4,335,039

THERMALLY STABLE POLYCARBONATE COMPOSITIONS

Ronald L. Markezich, Mt. Vernon, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed 1978, Ser. No. 957,427
Int. Cl.[3] C08K 5/15, 5/52
U.S. Cl. 524—108 7 Claims

1. A thermally stabilized aromatic polycarbonate composition comprising an admixture of a high molecular weight aromatic polycarbonate and a stabilizing amount of a dioxane phosphite stabilizer represented by the general structure:



wherein n is 1 to 3; a plus b equal 3-n; R_1 and R_2 can be the same or different and can each independently be an alkyl of C_1 to C_{30} or an aryl of C_6 to about C_{30}; and, R_3, R_4 and R_5 can be the same or different and can each independently be hydrogen, alkyl, aryl, aralkyl, halomethyl, cyanomethyl, alkoxymethyl, aryloxymethyl, aralkyloxymethyl or acyloxymethyl.

4,335,040

THERAPEUTIC PRODUCT AND METHOD

William S. Livingston, Woodland Hills, Calif., assignor to Livingston Labs., Van Nuys, Calif.

Continuation of Ser. No. 583,724, Jun. 4, 1975, abandoned, which is a continuation-in-part of Ser. No. 602,434, Oct. 6, 1966, Pat. No. 3,526,697, which is a continuation-in-part of Ser. No. 207,146, Jun. 26, 1962, abandoned, which is a continuation-in-part of Ser. No. 660,559, May 21, 1957, abandoned, and Ser. No. 655,320, Apr. 26, 1957, abandoned, which is a continuation-in-part of Ser. No. 623,711, Nov. 21, 1956, abandoned, which is a continuation-in-part of Ser. No. 256,334, Nov. 14, 1951, abandoned, which is a continuation-in-part of Ser. No. 127,799, Nov. 16, 1949, abandoned. This application 1977, Ser. No. 775,225
Int. Cl.[3] A61K 35/12, 35/50; C07G 7/00
U.S. Cl. 260—112 R 10 Claims

1. A method for the production of a therapeutically active substance which comprises:

(a) Placing in a pressure vessel a quantity of material comprising animal tissues selected from the group consisting of fresh human placenta or other normal or malignant animal tissues;

(b) Enclosing and sealing said pressure vessel;

(c) Maintaining the temperature within said vessel from about 5° C. to less than about 65° C., and the pressure within said vessel greater than about 15 psig but less than about 45 psig for at least about 2 weeks;

(d) Opening said vessel at the conclusion of said period;

(e) Recovering a liquid portion of the semi-liquid contents of said vessel; and

(f) Sterilizing the said liquid portion.

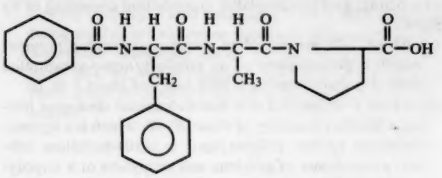
4,335,041

HIGH SENSITIVITY ASSAYS FOR ANGIOTENSIN CONVERTING ENZYME

James W. Ryan, and Alfred Chung, both of Miami, Fla., assignors to Ventrex Laboratories, Inc., Portland, Me.

Division of Ser. No. 854,538, Nov. 25, 1977. This application 1980, Ser. No. 191,029
Int. Cl.[3] C07C 103/52
U.S. Cl. 260—112.5 R 3 Claims

1. A composition of matter consisting essentially of:



Benzoylphenylalanylalanylproline

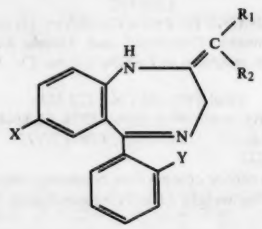
4,335,042

PROCESS TO PRODUCE IMIDAZOBENZODIAZEPINE INTERMEDIATES

Henry J. Niemczyk, Wayne, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed 1980, Ser. No. 142,581
Int. Cl.[3] C07D 243/16, 401/04
U.S. Cl. 260—239 BD 3 Claims

1. A process to produce a compound of the formula

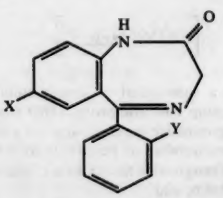


wherein R_1 and R_2 are selected from the group consisting of the groups C_2H_5OOC—, CH_3OOC— and N≡C— with the limitation that R_1 and R_2 cannot both be N≡C—, Y is hydrogen or halogen and X is selected from the group consisting of hydrogen, halogen and nitro

which comprises

(A) reacting an alkali metal hydride with a compound selected from the group consisting of diethylmalonate, ethylcyanoacetate and dimethylmalonate, followed by reaction with diethyl chlorophosphate and

(B) reacting the product of (A) with a benzodiazepin-2-one of the formula



wherein X and Y are as above

to produce the final product.

4,335,043

SUBSTITUTED N-METHYLENE DERIVATIVES OF THIENAMYCIN

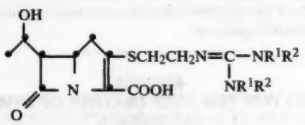
Burton G. Christensen, Metuchen; William J. Leanza, Berkeley Heights, and Kenneth J. Wildonger, Somerville, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 852,425, Nov. 17, 1977, Pat. No. 4,194,047, which is a continuation-in-part of Ser. No. 733,654, Oct. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 676,261, Apr. 12, 1976, abandoned, which is a continuation-in-part of Ser. No. 634,296, Nov. 21, 1975, abandoned. This application 1979, Ser. No. 84,013

Int. Cl.[3] C07D *487/04;* A61K *31/40*

U.S. Cl. 260—245.2 T 3 Claims

1. The compound having the following structure



wherein R^1 and R^2 are independently selected from the group consisting of: hydrogen, substituted and unsubstituted: alkyl having 1–6 carbon atoms; alkenyl having 3–6 carbon atoms; cycloalkyl, cycloalkylalkyl, cycloalkenyl, and cycloalkenylalkyl having 3–6, 4–7, 4–6 and 4–7 carbon atoms, respectively; nitro; amino; mono- or di-alkylamino, wherein the alkyl moieties each comprises 1–6 carbon atoms; or benzyl, thienylalkyl, furylalkyl or pyridylalkyl, wherein alkyl is 1–3 carbon atoms; wherein the ring or chain substituent or substituents relative to the definition of R^1 and R^2 are mono-substituents or disubstituents selected from the group consisting of chloro, fluoro, hydroxyl, alkoxyl having 1–3 carbon atoms, dialkylamino having 1–3 carbon atoms in each alkyl moiety, and alkylthio having 1–3 carbon atoms.

4,335,044

PLANT GROWTH REGULATING PERFLUOROACYL ARYLTHIOUREIDO ISOINDOLEDIONES

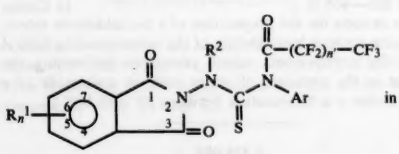
Loren W. Hedrich, Orange, Tex., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Division of Ser. No. 175,000, Aug. 4, 1980, Pat. No. 4,289,527. This application 1981, Ser. No. 262,279

Int. Cl.[3] C07D *209/48*

U.S. Cl. 548—475 24 Claims

1. Compounds which have the general structural formula:



in which

R_n^1 is; C_1 to C_4 alkyl, nitro or halo and n is zero or an integer from 1 to 4

R^2 is C_1 to C_4 alkyl, or benzyl, n′ is zero, 1 or 2 and

Ar is; naphthyl, phenyl or phenyl bearing thereon from one to three of the substituents: cyano, benzyloxy, nitro, bromo, chloro, trifluoromethyl and C_1 to C_4 alkyl, alkenyl, alkoxy, alkylthio and alkyl-substituted amino.

4,335,045

PREPARATION OF N-ALKENYL-2-AMINOMETHYL-PYRROLIDINES

Eric-Alain Denzler, Zurich, Switzerland, assignor to Sachim S.A., Geneva, Switzerland

Filed 1976, Ser. No. 669,967

Claims priority, application Switzerland, 1975, 16485/75

Int. Cl.[3] C07D *207/09*

U.S. Cl. 548—566 4 Claims

1. A process of preparing an N-alkenyl-2-amino-methyl-pyrrolidine comprising the steps of

(a) reacting tetrahydrofurfurylamine with gaseous hydrochloric acid and thionyl chloride at temperatures up to 110° C. to produce 2,5 dichloropentylamine hydrochloride,

(b) acetylizing the 2,5 dichloropentylamine hydrochloride with acetyl chloride to form N-acetyl-2,5-dichloropentylamine,

(c) condensing the N-acetyl-2,5-dichloropentylamine with an alkenylamine to form an N-alkenyl-2-acetylaminomethyl pyrrolidine,

(d) then removing the acetyl group from the N-alkenyl-2-acetylaminomethyl pyrrolidine by acidifying, and then

(e) alkalizing the product of step (d),

(f) and recovering said N-alkenyl-2-aminomethyl-pyrrolidine.

4,335,046

POLYESTER COMPOSITIONS, SHAPED ARTICLES OBTAINED FROM THEM AND PROCESSES FOR PREPARING THEM

Patrick J. Horner, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 43,424, May 29, 1979, Pat. No. 4,284,756. This application 1981, Ser. No. 257,227

Claims priority, application United Kingdom, 1978, 26606/78

Int. Cl.[3] C07D *311/86*

U.S. Cl. 549—392 1 Claim

1. 3,6-bis(hydroxyethoxy)xanth-9-one.

4,335,047

PREPARATION OF CYCLIC ACETALS OF TRANS-4-CHLORO-3-METHYL-BUT-2-EN-1-AL, AND PREPARATION OF TRANS-3-METHYL-BUT-2-ENE-1,4-DIAL-1-MONOACETALS

Hagen Jaedicke, Ludwigshafen, and Joachim Paust, Neuhofen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

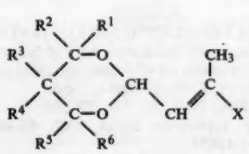
Filed 1980, Ser. No. 138,411

Claims priority, application Fed. Rep. of Germany, 1979, 2917413

Int. Cl.[3] C07D *319/04*

U.S. Cl. 549—369 6 Claims

1. A process for the preparation of an acetal of the general formula I

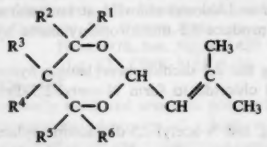


(I)

wherein R^1 to R^6 are independently —H, —CH_3 or —C_2H_5 and X is —CH_2Cl or

wherein

(A) a molar amount or slight excess of sulfuryl chloride is introduced slowly into a solution of the corresponding acetal of 3-methyl-but-2-en-1-al of the formula II



(II)

in a halohydrocarbon of boiling point 50°–120° C., at 50°–120° C., at the rate at which the sulfuryl chloride is consumed in the reaction mixture, and

(B) where X is

the resulting 4-chloro-3-methyl-but-2-en-1-al-acetal is oxidized under mild reaction conditions.

4,335,048

5-(2-HYDROXYPROPOXY)-8-PROPYL-4H-1-BENZOPYRAN-4-ONE-2-CARBOXYLIC ACID

Hugh Cairns, Loughborough; Richard Hazard, Cropston; John King, and Thomas B. Lee, both of Loughborough, all of England, assignors to Fisons Limited, London, England

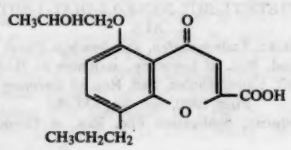
Continuation of Ser. No. 594,836, Jul. 10, 1975, abandoned. This application 1980, Ser. No. 122,284

Claims priority, application United Kingdom, 1974, 30647/74

Int. Cl.³ C07D *311/24*

U.S. Cl. 549—402 **2 Claims**

1. A compound selected from the group consisting of the compound having the formula



and pharmaceutically acceptable salts and C1–C10 alkyl esters thereof.

4,335,049

PROCESS FOR PRODUCING 5-METHYLFURFURAL

Kazuhiko Hamada; Goufu Suzukamo, both of Ibaraki, and Koichi Fujisawa, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed 1981, Ser. No. 279,004

Claims priority, application Japan, 1980, 55-98086; 1981, 56-41111; 1981, 56-41024

Int. Cl.³ C07D *307/46*

U.S. Cl. 549—483 **6 Claims**

1. A process for producing 5-methylfurfural which comprises that 5-chloromethylfurfural is reduced with hydrogen in an organic solvent in the presence of a palladium catalyst.

4,335,050

PROCESS FOR THE PREPARATION OF THE 5- AND 6-NITRO DERIVATIVES OF 1,2,3,4-TETRAHYDRO-ANTHRAQUINONE FROM 1,2,3,4,4A,9A-HEXAHYDRO-9,10-ANTHRACENE-DIONE

Serge Delavarenne, Francheville le Haut, and Pierre Tellier, Sainte Foy les Lyon, both of France, assignors to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed 1979, Ser. No. 80,030

Claims priority, application France, 1978, 78 29507

Int. Cl.³ C07C *50/18*

U.S. Cl. 260—369 **7 Claims**

1. A process for preparing mononitro derivatives substituted in positions 5 or 6 of 1,2,3,4-tetrahydroanthraquinone which comprises reacting 1,2,3,4,4a,9a-hexahydro-9,10-anthracenedione with nitric acid to simultaneously oxidize and nitrate 1,2,3,4,4a,9a-hexahydro-9,10-anthracene-dione to produce 5-nitro-1,2,3,4-tetrahydroanthraquinone and/or 6 nitro-1,2,3,4-tetrahydroanthraquinone.

4,335,051

PROCESS FOR THE PREPARATION OF DIMETHYL CARBONATE

Hans-Josef Buysch; Heinrich Krimm, both of Krefeld, and Siegfried Böhm, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed 1980, Ser. No. 155,036

Claims priority, application Fed. Rep. of Germany, 1979, 2925209

Int. Cl.³ C07C *68/00*

U.S. Cl. 260—463 **8 Claims**

1. In a process for the preparation of of dimethyl carbonate by reacting methanol with phosgene and/or methyl chloroformate, the improvement wherein the reaction is carried out in the presence of a 15 to 50 percent by weight aqueous alkali metal hydroxide solution and in the presence of an inert, water-immiscible organic solvent, at a temperature in the range from −20° C. to +40° C., employing 2 to 2.6 mols, per mol of phosgene, or 1 to 1.3 mols, per mol of methylchloroformate, of said alkali metal hydroxide.

4,335,052

METHOD OF PREPARING SUBSTITUTED BENZALDEHYDES

Günther Bernhardt, St. Augustin; Egon-Norbert Petersen, Neunkirchen, and Gerhard Daum, Cologne, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed 1980, Ser. No. 210,469

Claims priority, application Fed. Rep. of Germany, 1979, 2948058

Int. Cl.³ C07C *121/76, 45/28*

U.S. Cl. 260—465 R **13 Claims**

1. In a process for the preparation of a benzaldehyde substituted in the nucleus by oxidation of the corresponding benzyl halides, the improvement which comprises performing the oxidation in the presence of water with an aminoxide of a tertiary amine at a temperature between 20° and 140° C.

4,335,053

N-CYANOBENZYL HALOACETAMIDES

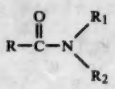
Francis H. Walker, Mill Valley, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 73,392, Sep. 7, 1979, Pat. No. 4,288,384. This application 1981, Ser. No. 256,321

Int. Cl.³ C07C *121/78*

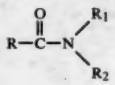
U.S. Cl. 260—465 D **6 Claims**

1. A compound of the formula



in which R is haloalkyl having 1 to 4 carbon atoms, inclusive, R_1 is hydrogen, and R_2 is 1-cyanobenzyl.

4. A compound of the formula



in which R is haloalkyl having 1 to 4 carbon atoms, inclusive, R_1 is methyl and R_2 is 1-cyanobenzyl.

4,335,054

PROCESS FOR THE PREPARATION OF ALKENYLBENZENECARBOXYLIC ACID DERIVATIVES AND ALKENYLNAPHTHALENECARBOXYLIC ACID DERIVATIVES

Hans-Ulrich Blaser, Ettingen, Switzerland; Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Alwyn Spencer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

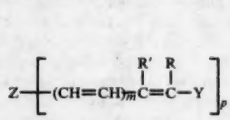
Filed 1981, Ser. No. 262,000

Claims priority, application Switzerland, 1980, 3732/80

Int. Cl.³ C07C *121/70, 49/217, 69/618, 103/22*

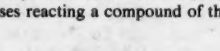
U.S. Cl. 260—465 G **12 Claims**

1. A process for the preparation of a compound of the formula I



(I)

in which m is zero or 1, p is 1 or 2, Z is substituted or unsubstituted phenyl or naphthyl if p=1, and substituted or unsubstituted phenylene or naphthylene if p=2, R is hydrogen, C_{1-4}-alkyl, $-CH_2COOR''$ or $-CH_2CH_2CN$ and R′ is hydrogen, or, if p=1 and m=zero, can also be C_{1-4}-alkyl, —CN or —COOR", but at least one of R and R′ must be hydrogen, Y is —CN, —COOR", $-CON(R'')_2$ or —COR" and the radicals R", independently of one another, are C_1-C_{12}-alkyl or phenyl, which comprises reacting a compound of the formula II



(II)

in which Z, m and p are as defined for formula I and X is chlorine, bromine or iodine, with a compound of the formula III or if desired, where p=2, with a mixture of two different compounds of the formula III

(III)

in which R, R′ and Y are as defined for formula I, in the presence of a base and with the addition, as a catalyst, of palladium metal or of a palladium compound which under the reaction conditions forms a phosphorus-free labile palladium(O) compound.

4,335,055

PROCESS FOR THE PREPARATION OF ALKENYLBENZENE DERIVATIVES OR ALKENYLNAPHTHALENE DERIVATIVES

Hans-Ulrich Blaser, Ettingen, Switzerland; Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Alwyn Spencer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

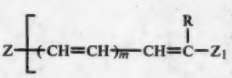
Filed 1981, Ser. No. 262,002

Claims priority, application Switzerland, 1980, 3731/80

Int. Cl.³ C07C *121/70, 15/52, 25/24, 49/217*

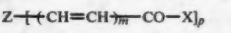
U.S. Cl. 260—465 K **13 Claims**

1. A process for the preparation of a compound of the formula I



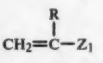
(I)

in which, if p=1, Z is substituted or unsubstituted phenyl or naphthyl and, if p=2, Z is substituted or unsubstituted phenylene, naphthylene or p-biphenylene, Z_1 is substituted or unsubstituted phenyl or naphthyl, R is hydrogen or C_{1-4}-alkyl, m is zero or 1 and p is 1 or 2, wherein a compound of the formula II



(II)

in which Z, m and p are as defined under formula I and X is chlorine, bromine or iodine, is reacted, in the presence of a base and with the addition, as a catalyst, of palladium metal or of a palladium compound which under the reaction conditions forms a phosphorus-free labile palladium-(O) compound, with a compound of the formula III or, if p=2, alternatively with a mixture of two different compounds of the formula III



(III)

in which R and Z_1 are as defined under formula I.

13. 4-Vinylcinnamonitrile.

4,335,056

PROCESSING ACRYLONITRILE WASTE GAS

James L. Callahan, Wooster; Wilfrid G. Shaw, Lyndhurst, and David B. Terrill, Bedford, all of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Filed 1981, Ser. No. 222,448

Int. Cl.³ C07C *120/14, 51/215, 45/35*

U.S. Cl. 260—465.3 **5 Claims**

1. In a process for recovering acrylonitrile from the gross reaction product produced by the fluid-bed ammoxidation of propylene, said gross reaction product being cooled to separate acrylonitrile and HCN therefrom thereby producing an ammoxidation waste gas containing at least 65% nitrogen, propylene and carbon dioxide, the improvement comprising passing said ammoxidation waste gas through a catalytic converter containing a fixed-bed of catalyst capable of converting the propylene in said ammoxidation waste gas to valuable product selected from the group consisting of acrolein, acrylic acid and acrylonitrile to thereby convert said propylene to at least one of said valuable products.

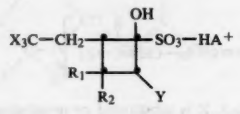
4,335,057

4-(2',2,2'-TRIHALOGENOETHYL)-CYCLOBUTANE-1-SULFONIC ACID SALTS WITH OPTICALLY ACTIVE BASES

John G. Dingwall, Sale, England; Hans Greuter, Cos Cob, Conn.; Pierre Martin, Rheinfelden, Switzerland; Peter Ackermann, Reinach, Switzerland, and Laurenz Gsell, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 103,983, Dec. 17, 1979, Pat. No. 4,299,967.
This application 1980, Ser. No. 219,803
Claims priority, application Switzerland, 1978, 12784/73
Int. Cl.³ C07C *143/20*
U.S. Cl. 260—501.19 3 Claims

1. A compound of the formula [III]



in which X is chlorine or bromine; one of R_1 and R_2 is methyl and the other is hydrogen or methyl, or R_1 and R_2 together are alkylene having 2–4 C atoms; A is an optically active base selected from the group consisting of S(+)-2-amino-1-butanol, R(−)-2-aminobutanol, L(+)-threo-2-amino-1-phenyl-1,3-propanediol, (−)-brucine, (+)-quinidine, (−)-quinine, (−)-cinchonidine, (+)-cinchonine, (+)-dehydroabietylamine, (+)-yohimbine, (−)-nicotine, (−)-ephedrine, (+)-ephedrine, (−)-N-methyl-ephedrine, R(+)-1-naphthyl-1-ethylamine, S(−)-1-naphthyl-1-ethylamine, S(−)-1-phenylethylamine, R(+)-1-phenylethylamine, (+)-pseudoephedrine, (−)-α-phenyl-β-p-tolylethylamine and (−)-and (+)-threo-1-(p-nitrophenyl)-2-N,N-dimethylaminopropane-1,3-diol; and Y is chlorine, bromine or a group $—OSO_2R'$, in which R' is alkyl having 1–4 C atoms, halogenalkyl having 1–4 C atoms, benzyl, naphthyl phenyl, methylphenyl, ethylphenyl, nitrophenyl, chlorophenyl or bromophenyl.

4,335,058

PREPARATION OF CARBOXYLIC ACID ANHYDRIDES

Nabil Rizkalla, River Vale, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.

Continuation-in-part of Ser. No. 219,788, Dec. 24, 1980. This application 1981, Ser. No. 267,962
Int. Cl.³ C07C *51/56, 51/54, 53/12*
U.S. Cl. 260—546 4 Claims

1. A process for the preparation of carboxylic acid anhydrides which comprises reacting an olefin and a carboxylic acid with carbon monoxide in the presence of a catalytically-effective quantity of a molybdenum-nickel or tungsten-nickel co-catalyst component, in the presence of a halide and in the presence of a promoter comprising an organo-phosphorus compound or an organo-nitrogen compound wherein the phosphorus and nitrogen are trivalent.

4,335,059

PREPARATION OF CARBOXYLIC ACID ANHYDRIDES

Nabil Rizkalla, River Vale, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.

Filed 1980, Ser. No. 219,788
Int. Cl.³ C07C *51/56, 51/54, 53/12*
U.S. Cl. 260—549 4 Claims

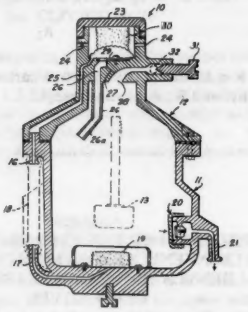
1. A process for the preparation of carboxylic acid anhydrides which comprises reacting a carboxylate ester and/or a hydrocarbyl ether with carbon monoxide in the presence of a catalytically-effective quantity of a molybdenum-nickel or tungsten nickel co-catalyst component, in the presence of an iodide and in the presence of a promoter comprising an organo-phosphorus compound or an organo-nitrogen compound wherein the phosphorus and nitrogen are trivalent.

4,335,060

MULTI-FUEL VAPOR CHARGE CARBURETION SYSTEM AND DEVICE THEREFOR

Adolfo P. Alegre, No. 119 Bignay St., Project II, Quezon City; Armando E. Guidote, Antipolo, Rizal, and Alfonso G. Puyat, No. 7 Caimito St., Forbes Park, Makati, Metro Manila, all of Philippines

Filed 1980, Ser. No. 132,988
Claims priority, application Philippines, 1979, 23009; 1979, 23189
Int. Cl.³ F02M *17/22*
U.S. Cl. 261—23 R 2 Claims



1. A fuel vapor producing device comprising a liquid fuel or mixture bowl-shape container; an associated cover for said container having a fuel inlet valve; and a float secured in said device, said cover integrally incorporating therewith a cylindrical air filter housing disposed vertically and concentrically on top thereof; an air agitator duct integrated in said device extending from the air filter housing to the bottom thereof to agitate the fuel or mixture therein; another air duct in said air filter housing, said air duct extending to the inside of said container having an outwardly bent portion to produce a swirling effect of the air to achieve a higher degree of mixture; a multi air jet selector disc provided on said air filter housing, said selector disc having a plurality of spaced holes of gradually increasing apertures adapted to the air duct opening on said housing, the opening of said air ducts depending on the requirement of an engine piston displacement to control the air-fuel mixture of the engine; a baffle inside the device to minimize the fuel splashing; a vapor outlet directly connected to the intake manifold and an air bleed jet provided on said vapor outlet to feed sufficient flow of air vapor mixture to the intake manifold.

4,335,061

AUXILIARY FUEL SUPPLY DEVICE FOR INTERNAL COMBUSTION ENGINES

Hiroto Kobayashi, Kamakura, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan

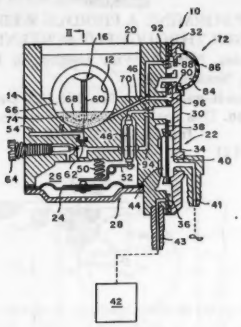
Filed 1980, Ser. No. 156,167
Claims priority, application Japan, 1979, 54-082180[U]
Int. Cl.³ F02M *1/16*
U.S. Cl. 261—44 G 3 Claims

1. In a carburetor body having a fuel and air mixing passage for supplying fuel to an internal combustion engine, said carburetor body having a fuel chamber, an air inlet passage, a main fuel nozzle to said air inlet passage, a throttle valve and an outlet for fuel and air mixture, a design to improve the fuel flow to assist in the starting of an engine in the absence of a choke valve which comprises:

(a) a body of porous absorbent material in the carburetor body upstream of said throttle valve to serve as a fuel retaining storage reservoir located on one side of the air

inlet passage in the body of said carburetor and upstream from the main fuel inlet,

(b) a fuel passage in said carburetor body independent of the main fuel inlet to carry liquid fuel to the interior of said porous body, and



(c) a pressure means on said body to direct liquid fuel from said fuel chamber in said body through said fuel passage to the interior of said body of porous absorbent material preparatory to the starting of an engine.

4,335,062

CARBURETOR WITH ROTARY THROTTLE

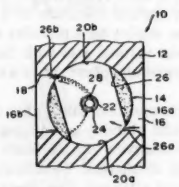
Hiroto Kobayashi, Kamakura, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan

Filed 1980, Ser. No. 156,179

Claims priority, application Japan, 1979, 54-075883[U]

Int. Cl.³ F02M 9/08

U.S. Cl. 261—44 G **1 Claim**



1. In a carburetor utilizing a cylindrical valve with a venturi bore that opens in the direction of the diameter of the throttle valve and wherein portions of the valve serve as bearings in a carburetor body as the cylinder rotates, that improvement which comprises utilizing a cylindrical valve formed of porous material in the area of the venturi bore, the carburetor valve being formed as a cylinder of solid metal having one portion reduced in diameter where the venturi bore passes through the cylinder, and a sleeve of porous material on said reduced portion to complete the cylindrical valve.

4,335,063

METHOD AND APPARATUS FOR PRESSURE CONTROL IN A PRESS

Dieter Kolb; Eugen Kopp, both of Stuttgart, and Manfred Müller-Sybrichs, Shöckingen, all of Fed. Rep. of Germany, assignors to Werner & Pfleiderer, Stuttgart, Fed. Rep. of Germany

Filed 1979, Ser. No. 47,780

Claims priority, application Fed. Rep. of Germany, 1978, 2825795

Int. Cl.³ C06B 21/00; B29C 3/06

U.S. Cl. 264—3 B **5 Claims**

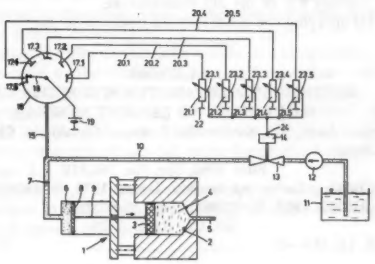
1. A method for controlling the compression of, and plastic or elastic, explosive mass which may have gas therein and contained in the pressure cylinder of a press, especially of an extrusion press, which includes a pressure piston, comprising the steps of:

advancing said pressure piston against said explosive mass at an arbitrarily high rate (FIG. 2, v_0) until a preliminary pressure level (FIG. 2, p_1) is reached:

reducing the rate of advance of said pressure piston against said explosive mass to a substantially lower value (FIG. 2, v_1); and

continuing the advance of said pressure piston against said explosive mass in sequential stages (FIG. 2, v_2–v_5) until extrusion pressure is reached, each stage of said sequential stages having a respective, higher rate of advance than the immediately preceding stage of said sequential stages and the respective rate of advance being substantially constant during each respective stage of said sequential stages.

3. An apparatus for controlling the compression of a plastic or elastic explosive mass which may have gas therein and is contained in the pressure cylinder of a press, especially of an extrusion press, which includes a pressure piston actuated by a hydraulic system, comprising:



a flow regulator in said hydraulic system for regulating the flow-rate of hydraulic fluid which actuates said pressure piston;

a plurality of pressure-sensitive signal generators, for generating input signals for a controller in dependence of pressure in said hydraulic system; and

a controller for controlling said flow regulator in dependence on a first and subsequent input signals from said signal generators, said controller initially effecting advance of said pressure piston at an arbitrarily high rate until a preliminary pressure level, as sensed by said pressure-sensitive signal generators, is reached, then effecting a reduction of the rate of advance of said pressure piston to a substantially lower value, and thereafter effecting a continuation of the advance of said pressure piston in sequential steps determined by sequential appearances of said subsequent input signals from respective ones of said signal generators, each step of said sequential steps having a higher rate of advance than the preceding step of said sequential steps, and the respective rate of advance being substantially constant during each respective step of said sequential steps.

4,335,064

PROCESS FOR PACKING ELECTROLYSIS CELLS FOR THE PRODUCTION OF ALUMINUM

Benoit Sulmont, Paralia Distomon, Greece, and Gerard Hudault, St. Jean de Maurienne, France, assignors to Aluminium Pechiney, Lyons, France

PCT No. PCT/FR79/00101, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00978, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 206,540
Claims priority, application France, 1978, 78 32055
Int. Cl.³ F27D 1/16
U.S. Cl. 264—30 6 Claims

1. A process for packing electrometallurgical furnaces and, in particular, cells for the production of aluminum by electrolysis of alumina dissolved in molten cryolite, characterized by the following stages:

(a) forming a setting cement having a low water retention capacity and low open porosity after setting comprising as essential constituents from about 25% to about 30% by weight of an aluminous cement, from about 35% to about 40% of vitreous silica in particles of from about 0.01 to about 0.1 micrometers, from about 35% to about 45% of an inert charge in particles of from about 1 to about 100 micrometers, and from about 10% to about 15% of CaO;

(b) adding an aggregate of which at least a fraction is constituted by a carbonaceous product while the other fraction is constituted by a non-carbonaceous product;

(c) adding a quantity of water not exceeding 10% and preferably 6% of the dry composition;

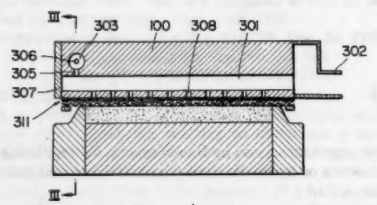
(d) applying the concrete thus obtained to use.

4,335,065

METHOD AND APPARATUS FOR PRODUCING MOULDINGS OF CEMENT MORTAR

Shigeo Ando, 272, Suehirocho 5 chome, Choshi-shi, Chiba 288, Japan

Filed 1980, Ser. No. 166,919
Claims priority, application Japan, 1979, 54-162671; 1980, 55-036180; 1980, 55-037381; 1980, 55-045163
Int. Cl.³ B28B 1/26
U.S. Cl. 264—87 17 Claims



1. A method of producing cement mortar mouldings comprising the steps of:

(a) supplying cement mortar material onto a lower mould at a first position;

(b) bringing said lower mould into a vertical alignment with an upper mould at a second position;

(c) pressing both upper and lower moulds to each other by means of a high-pressure press cylinder to compress said cement mortar material therebetween into a moulding;

(d) dehydrating said compressed material by subjecting the same to suction through filtering means including a drainer plate from above;

(e) separating the lower mould from the moulding while maintaining said suction to retain the moulding on the upper mould;

(f) bringing the upper mould into a vertical alignment with a conveyor;

(g) contacting the upper mould and the conveyor;

(h) stopping the suction to land the moulding onto the conveyor; and

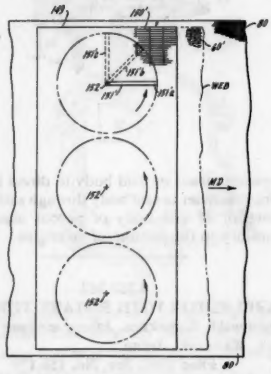
(i) restoring the upper mould to the first position.

4,335,066

METHOD OF FORMING A FIBROUS WEB WITH HIGH FIBER THROUGHPUT SCREENING

James H. Dinius, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Continuation-in-part of Ser. No. 106,142, Dec. 21, 1979, abandoned. This application 1981, Ser. No. 266,753
Int. Cl.³ B29C 13/00
U.S. Cl. 264—121 9 Claims



1. In a method of forming an air-laid web of dry fibers on a high speed production basis comprising:

(a) delivering dry fibrous materials to a fiber distributing head of the type employing a plurality of rotors mounted for rotation about vertical axes with their blades rotating in at least one horizontal plane above a screened discharge opening;

(b) agitating the fibrous materials within the fiber distributing head with said plurality of rotating rotors to stratify the fibers with relatively coarse fibers rising within the head and being discharged therefrom through a fiber recycle outlet and relatively fine fibers being discharged through said screened discharge opening;

(c) sifting the relatively fine fibers through a screen member; and,

(d) collecting said fibers sifted through said screen member on a forming surface moving in a machine direction, wherein said fibers are collected on said forming surface in the form of a web of dry fibers,

the improvement comprising:

said screen member being provided in the form of a slotted screen, with screen openings having a long slot dimension and a short slot dimension.

4,335,067

PRODUCING REPLICAS OF BODY PARTS

George Castanis, and Thaddeus T. Castanis, both of 444 6th Ave., New York, N.Y. 10011

Filed 1981, Ser. No. 263,349
Int. Cl.³ B29C 1/02
U.S. Cl. 264—222 7 Claims

1. A method of synthetically cloning a body part or other member to produce a replica thereof having flesh-like properties, the method comprising the steps of:

A mixing a charge of alginate powder taken from a supply thereof with water to produce a quick-setting flowable molding compound;

B pouring the molding compound into a mold form and inserting the part to be cloned therein to create an impression cavity:

C holding the inserted part in the compound until it has gelled, the part then being removed to expose the impression cavity in the gelled mold;

D mixing a charge of alginate powder taken from a supply thereof with water to produce a quick-setting casting compound;

E pouring the casting compound into the cavity; and

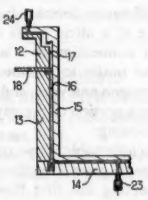
F after the casting compound has gelled to form the replica, removing it from the cavity.

4,335,068

METHOD OF MOULDING CONTAINERS FROM AT LEAST TWO DIFFERENT PLASTIC MATERIALS, MACHINE FOR CARRYING OUT THIS METHOD AND CONTAINERS OBTAINED THEREBY

Andre Hemery, Les Andelys, France, assignor to Allibert Exploitation, France

Filed 1978, Ser. No. 970,181
Claims priority, application France, 1977, 77 39069
Int. Cl.³ B29F *1/06, 1/12*
U.S. Cl. 264—245 **6 Claims**



1. A method of moulding hollow objects such as containers from plastic material consisting of at least two compatible plastic materials which are sealable to each other and which differ in either of their nature and their colour, said method including the steps of providing a mould and a counter-mould, as well as arranging them so as to leave an injection space between the wall of said mould and the wall of said counter-mould and injecting said component material of said article of manufacture into said injection space, wherein the improvement comprises the following operating steps:

a—defining within said space through separating means at least one first sub-space and one second sub-space which are contiguous to each other at a junction zone in the region of said separating means;

b—injecting into said first sub-space a first one of said two materials in a predetermined volume computed to be just that required to fill said first sub-space substantially;

c—injecting into said second sub-space a second one of said two materials;

d—removing said separating means while said first material is still fluid in said junction zone; and

e—continuing injection of said second material under a predetermined pressure such that the total volume of said second material injected is larger than that of said second sub-space so as to achieve a local interpenetration of said second material into said first material within said junction zone between said spaces.

4,335,069

FLAT SHEET PROCESS FOR PRODUCTION OF POLYOLEFIN SHRINK FILM

Stanley B. Levy, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 278,434
Int. Cl.³ B29C *17/02*
U.S. Cl. 264—290.2 **5 Claims**

1. A process for manufacturing biaxially oriented polyolefin film with substantially balanced shrinkage of 45 to 65 percent at 120° C. to 140° C. and a shrink force of about 6.9×10^5 to 1.4×10^6 pascal comprising the sequential steps of:

(i) conducting a previously extruded and quenched flat polyolefin film of an indefinite length along a predetermined treatment path;

(ii) heating a portion of the film in the path substantially evenly to a temperature at least 10° C. above the film's line drawing temperature while not exceeding the film's crystalline melt temperature;

(iii) transversely stretching the heated film to a width of from 7 to 10 times the width of the unstretched film;

(iv) cooling the film to a temperature below which the film is subject to shrinkage while holding the film in the transverse stretch of step (iii);

(v) heating the film substantially evenly to a temperature at least equal to the film's line drawing temperature while not exceeding the film's crystalline melt temperature;

(vi) longitudinally stretching the film 1.5 to 4 times the length of the unstretched film so that the ratio of the transverse stretch of step (iii) to the longitudinal stretch is at least 2.0;

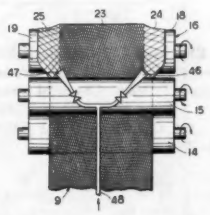
(vii) cooling the film to a temperature below which the film is subject to shrinkage while holding the film in the longitudinal stretch of step (vi).

4,335,070

METHOD OF MANUFACTURING A RETICULAR WEB HAVING REINFORCED SELVAGES

Masahide Yazawa; Hiroshi Yazawa, both of Kunitachi; Haruhisa Tani, and Kazuhiko Kurihara, both of Tokyo, all of Japan, assignors to Nippon Petrochemicals Co., Ltd. and Polymer Processing Research Institute, Ltd., both of, Japan

Filed 1981, Ser. No. 222,972
Claims priority, application Japan, 1980, 55-2315
Int. Cl.³ B29D *00/00, 7/14*
U.S. Cl. 264—555 **9 Claims**

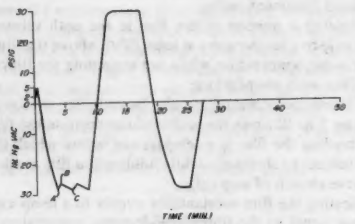


1. A method of manufacturing a reticular web having reinforced and dimensionally stabilized selvages, comprising the steps of:

(a) feeding a longitudinally stretched reticular web of thermoplastic resin composed of warpwise split or slit fibers;

(b) tranversely spreading opposite selvages only of the reticular web;
(c) thereafter, attaching at least one dimensionally stable thread to each of said selvages along the length thereof;
(d) transversely spreading the middle portion of the reticular web between said selvages at a magnification which is smaller than that of said selvages; and
(e) heat-shrinking said middle portion longitudinally until it has substantially the same length as that of said selvages, with each selvage having a basis weight which is substantially the same as or smaller than that of said middle porton.

4,335,071
PRESSURE-VACUUM PURGE CYCLE
David C. Thornton, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.
Filed 1980, Ser. No. 194,690
Int. Cl.³ A61L *2/06*
U.S. Cl. 422—26 **2 Claims**

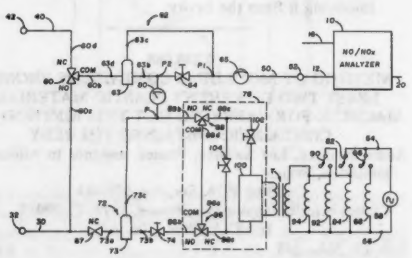


1. An improvement in the conditioning phase of a dry goods load sterilization cycle rendering maximum energy and cycle efficiency for use in a steam sterilization process, which conditioning phase removes air from a sterilization chamber and said load therein and humidifies said load, said improvement comprising the steps of:
introducing steam into said chamber above the air therein by at least one positive pressure pulse having a predetermined maximum positive pressure of about five pounds per square inch gauge and subsequently venting air therefrom to a predetermined minimum positive pressure of about two pounds per square inch gauge at both of which pressures steam and air will stratify and said steam will thereby displace said vented air in said chamber in a predetermined time;
terminating said introduction of steam and substantially simultaneously applying a vacuum of no less than 26 inches of mercury; and
terminating said application of vacuum and substantially simultaneously commencing one of at least two predetermined vacuum pulses for a predetermined time.

4,335,072
OVERHEAD CORROSION SIMULATOR
Jack W. Barnett, and Roy D. Sawyer, both of Missouri City, Tex., assignors to Nalco Chemical Company, Oak Brook, Ill.
Filed 1981, Ser. No. 293,620
Int. Cl.³ G01N *17/00*; C23F *14/02*
U.S. Cl. 422—53 **10 Claims**

1. In a petroleum refinery having a fractionation tower interconnected by an overhead vapor line to condensing and/or heat exchange equipment, an overhead corrosion simulator for simulating and measuring the corrosion activity on the internal surfaces of said equipment, said simulator comprising a water box having a cooling coil therein, said coil having an inlet connected to said overhead vapor line to take a slip stream of hydrocarbon vapors at a temperature substantially higher than the dew point of water in the stream, and an outlet connected to a point in the refinery such that a sufficient pressure drop is established across the simulator to assure movement of the stream through the coil, said water box having an inlet and an outlet for cooling water to cause counterflow to the stream, and a plurality of corrosion probes mounted along the coil to measure corrosion rate of the stream at various temperatures.

4,335,073
NOX CONVERSION EFFICIENCY DETECTOR
Loran D. Sherwood, Walled Lake, Mich.; Jack J. Keegan, La Habra, and Stephen A. Gniewek, Glendora, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.
Filed 1981, Ser. No. 260,238
Int. Cl.³ G01N *21/76*
U.S. Cl. 422—83 **23 Claims**



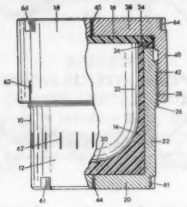
1. In a conversion efficiency detector having a first inlet for connection to a source of a nitric oxide containing standard gas, a second inlet for connection to a source of an oxygen containing zero gas, an outlet for connection to the sample inlet of an oxides of nitrogen analyzer, and an ozone generator for converting to ozone a portion of the oxygen in the zero gas, the improvement comprising:
(a) first and second adjustable flow regulating means for regulating the flow of gases therethrough,
(b) means for connecting the first flow regulating means between the first inlet and the outlet, and
(c) means for connecting the second flow regulating means and the ozone generator between the second inlet and the first flow regulating means, so that the rate of flow of gas through the second flow regulating means may be adjusted without changing the rate of flow of gas through the first regulating means.

4,335,074
LIQUID AND VAPOR-TIGHT VESSEL FOR PERFORMING DECOMPOSITION REACTIONS
Bedrich Bernas, 13 Soroka St., Haifa, Israel
Continuation-in-part of Ser. No. 960,539, Nov. 14, 1978, abandoned. This application 1980, Ser. No. 219,492
Claims priority, application Israel, 1977, 53370
Int. Cl.³ B01L *3/00*
U.S. Cl. 422—102 **7 Claims**

1. A liquid-and vapor-tight decomposition vessel and closing tool kit comprising
a rigid integral, cylindrical supporting member having a bottom, peripheral sides and an upstanding ledge surrounding an opening, a raised circumferential outer thread

provided on its outside below said ledge, at least three longitudinal, spaced-apart recesses on its outside at the bottom end,

a rigid integral cap releasably secured to said supporting member, having a closed top portion, a downwardly depending skirt portion provided with internal thread adapted to cooperate with said outer thread on said supporting member, at least three longitudinal, spaced-apart recesses on the outside at the top end, means for determining the tightening torque of said cap relative to said supporting member within a range of 1 kg.m to 3 kg.m, said means including a mark on the outside peripheral side of said supporting member and a mark on the outside skirt portion of said cap,



a rigid, integral bucket of a plastic material formed of polytetrafluoroethylene including a bottom, peripheral sides and an upstanding rim, closely fitting into said opening of said supporting member,

a sealing disc of a plastic material formed of polytetrafluoroethylene, interposed between the top of said cap and said upstanding rim of said bucket,

a closing tool provided with at least three projections adapted to engage with said recesses in said supporting member, and

a closing tool provided with at least three projections adapted to engage with said recesses in said cap.

4,335,075

DOOR SEAL FOR STERILIZER

Edward M. Kackos, Belmar, N.J., assignor to Vernitron Corporation, Lake Success, N.Y.

Filed 1980, Ser. No. 218,934

Int. Cl.³ A61L *2/06, 2/26;* B65D *53/02*

U.S. Cl. 422—112 **4 Claims**

1. Door sealing means for a sterilizer having an open wall providing communication with an interior chamber closable by a door, and means for retaining said door in place at said wall to close said chamber, comprising:

an endless, hollow sealing ring having outer elastic walls;

a partition inside said ring dividing said ring into two separate, endless, inflatable channels expansible to seal said door to said wall of said sterilizer;

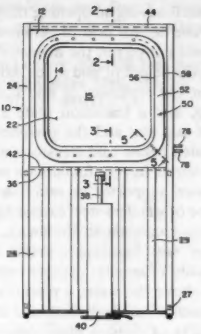
two flexible tubes integral with said ring and communicating with said channels respectively;

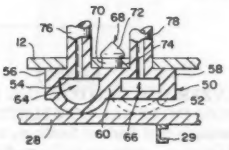
quickly detachable attachment means on one of said outer walls for attaching said ring to said open wall of said sterilizer;

a source of compressed air;

valve means having two outlets alternately providing communication between said source of compressed air, and said channels respectively to inflate one channel at a time; and

pressure responsive means arranged to actuate said valve means to cut off communication between said source of compressed air and one of said two channels automatically when pressure therein falls below a certain predetermined magnitude, and to provide communication between said source of compressed air and the other of said two





channels automatically to inflate the same, for maintaining said seal between said door and said wall of said sterilizer.

4,335,076

CONVERTER FOR CONVERTING SULFUR DIOXIDE TO SULFUR TRIOXIDE

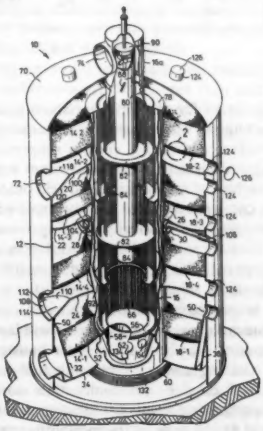
John McFarland, Campbellville, Canada, assignor to Chemetics International Ltd., Montreal, Canada

Filed 1981, Ser. No. 224,154

Claims priority, application Canada, 1980, 360774

Int. Cl.³ B01D *50/00*

U.S. Cl. 422—171 **26 Claims**



2. A converter having an exterior shell, at least two catalyst beds within said shell, one above the other, each catalyst bed having a support plate for the catalyst thereof, a division plate

between said beds, said support and division plates extending to and being sealingly secured to said shell, said division plate and said support plate of said one bed defining a space therebetween, said shell having an opening therein below said support plate of said one bed for flow of gas between said space and the exterior of said converter, the diameter of said opening being greater than the height of said space, said division plate having a slot therein, the periphery of said slot meeting the edges of said opening, and a transition plate extending between the periphery of said slot and the periphery of that part of said opening located below said transition plate.

21. A converter having foundation means, an exterior shell of stainless steel supported on said foundation means, an interior core tube of stainless steel extending vertically within said shell and being concentric therewith, said core tube being supported by said foundation means independently of said shell, a plurality of annular catalyst beds within said shell and located one above the other, a plurality of support plates one supporting each of said beds from said shell and from said core tube, a plurality of division plates one between each adjacent pair of said beds, said support plates and said division plates each being preformed in substantially the configuration of a trough-shaped toroidal section to reduce sagging of said support plates and division plates in use.

4,335,077

CATALYZER FOR DETOXIFYING EXHAUST GASES FROM INTERNAL COMBUSTION ENGINES

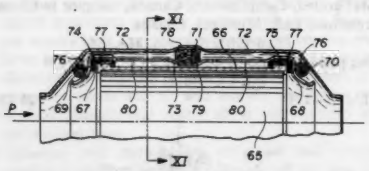
Andres Santiago, and Enrique Santiago, both of Augsburg, Fed. Rep. of Germany, assignors to Zeuna-Staerker KG, Augsburg, Fed. Rep. of Germany

Filed 1973, Ser. No. 342,540

Claims priority, application Fed. Rep. of Germany, 1973, 2303789

Int. Cl.[3] **F01N** *3/15;* **B01J** *8/06*

U.S. Cl. 422—179 **8 Claims**



1. In a catalyzer for detoxifying exhaust gases from internal combustion engines wherein a monolithic catalyst body having an outer surface and facing ends is supported in a housing having an inner surface, by support means arranged between said inner surface of said housing and said outer surface of said monolithic catalyst body, the improvement wherein said support means comprise elastically yielding means, and holding means for locating said elastically yielding means at least partially between each facing end of said monolithic catalyst body and said housing whereby the monolithic catalyst body is elastically restrained in said housing against movement in all three dimensions of space, and wherein said housing comprises an inner housing member and an outer housing member, said elastically yielding means comprising first and second ring means made of gas tight non-combustible material, said holding means comprising means for locating said first ring means between said facing ends of the monolithic catalyst body and said inner housing member, and further means for locating said second ring means between said inner and outer housing members substantially adjacent the ends of said monolithic catalyst body.

4,335,078

CATALYTIC REACTOR FOR AUTOMOTIVE EXHAUST LINE

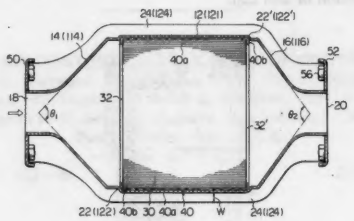
Takashi Ushijima, Tokyo; Hajime Kawasaki, Yokohama; Takayuki Yamazaki, Tokyo, and Yoshio Iwasa, Nagareyama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Continuation of Ser. No. 919,791, Jun. 28, 1978, abandoned. This application 1980, Ser. No. 123,572

Claims priority, application Japan, 1977, 52-122411[U]; 1977, 52-135155[U]

Int. Cl.[3] **F01N** *3/28;* **B01J** *35/04*

U.S. Cl. 422—179 **5 Claims**



1. A catalytic reactor for treating exhaust gas of an automotive engine in an exhaust line for the engine, the reactor comprising:

a tubular housing having an inlet at one end thereof and an outlet at the other end thereof;

a monolithic and porous core treated with a catalytic material and confined in a mid-portion of said housing between a vacant fore-portion of said housing extending from said inlet to said mid-portion and diverging in longitudinal section toward said mid-portion and a vacant aft-portion of said housing extending from said mid-portion to said aft-portion, and converging in longitudinal section from said mid-portion, the angle of convergence of said aft-portion being greater than the angle of divergence of said fore-portion, said core having a cross-sectional shape generally similar to the cross-sectional shape of said mid-portion; and

a buffer layer of wire mesh which covers the outer periphery of said core so as to be tightly interposed between said core and the inner surface of said housing;

said housing consisting of a pair of shells assembled together along a plane intersecting the longitudinal axis of said housing and two coupling flanges welded to said shells respectively at foremost and aftmost locations of said housing for coupling of the reactor with other tubular components of the exhaust line, each of said shells being a one-piece member having two side flanges extending outwards along said plane substantially over the entire length of each shell such that said housing is integrated by welding said side flanges of one shell to the corresponding side flanges of the other shell and welding each of said coupling flanges both to the peripheral surfaces of endmost regions of said shells and to end faces of said side flanges, the width of each of said side flanges becoming gradually larger both in said fore-portion and in said aft-portion than in said mid-portion and terminating in a maximum width at both the fore-end and aft-end of each side flange, each of said coupling flanges being provided with at least two bolt holes outwardly spaced from the welded portions of said coupling flanges with said fore and aft portions of said housing and in a plane distant from the plane of said side flanges, said shells being shaped so as to form two peripheral shoulders in the inside of said housing respectively at fore- and aft- boundaries of said mid-portion and having a plurality of parallel and spaced circumferential corrugations formed in a mid-region of said mid-portion of said housing each terminating at a

short distance from each of said side flanges, whereby said buffer layer is pressed against the outer periphery of said core by inwardly projected portions of said corrugations, said buffer layer consisting of a central major region and two marginal regions which are formed of a wire finer than the wire used as the material of said central major region so as to become more ductile than said central major region and more finely meshed than said central major region and respectively protrude beyond end faces of said core such that the protruded portion of each of said marginal regions is forced to be folded inwardly along the edge of one end of said core by contact with one of said two peripheral shoulders whereby axial movement of said core is precluded.

4,335,079

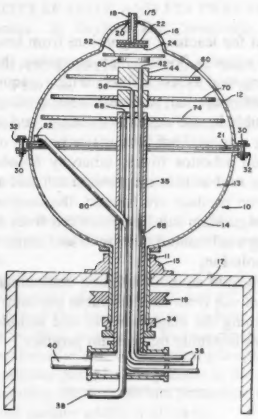
APPARATUS FOR THE SULFONATION OR SULFATION OF ORGANIC LIQUIDS

John E. Vander Mey, 78 Winding Way, Stirling, N.J. 07980

Filed 1980, Ser. No. 198,779

Int. Cl.³ B01J *3/02, 10/02*

U.S. Cl. 422—194 **15 Claims**



1. A rotatable reactor for reacting a thin film of an organic liquid with a gaseous reactant comprising an oblate or substantially spheroidal reaction chamber mounted on a supporting frame for rotation on its axis in a substantially horizontal position, with an inner reaction surface; evacuating means for maintaining said reaction chamber under subatmospheric pressure; separating means comprising a plurality of parallel discs to divide said reaction surface into successive reaction areas, thus forming corresponding individual chambers to which said reaction areas are exposed; said discs being perpendicular to said axis of rotation, a first depositing means to deposit said organic liquid on said reaction surface, a second depositing means for depositing controlled quantities of said gaseous reactant within said individual chambers; rotating means to rotate said reaction chamber at a speed such that said organic liquid is continuously moved by centrifugal force as a thin film, successively over said successive reaction areas for exposure to said gaseous reactant, and the resultant reaction product is continuously moved to the inner periphery of said reaction chamber where it accumulates, cooling means for controlling the reaction temperature; and means for removing said reaction product from the reactor.

4,335,080

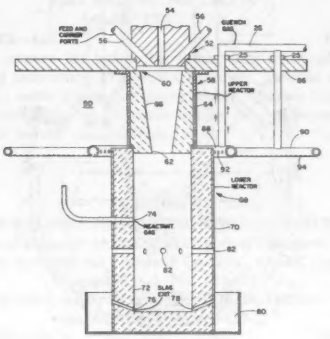
APPARATUS FOR PRODUCING SELECTIVE PARTICLE SIZED OXIDE

Robert D. Davis, Costa Mesa, and Roy L. Blizzard, Mission Viejo, both of Calif., assignors to Thermo Electron Corporation, Waltham, Mass.

Continuation-in-part of Ser. No. 820,536, Aug. 1, 1977, abandoned. This application 1980, Ser. No. 104,387

Int. Cl.³ B01D *5/00*

U.S. Cl. 422—244 **8 Claims**



1. Plasma reactor apparatus for the formation of particulates from a feed material comprising:

a plasma reactor;

means forming a first plasma reaction chamber communicating with the plasma reactor;

said plasma reactor being operable to generate a plasma arc and to deliver the tail flame of said arc to said first reaction chamber to establish in said first reaction chamber a plasma environment at a temperature effective to vaporize such feed material and form an effluent;

means defining an inlet to said first reaction chamber for receiving the tail flame from said reactor;

means defining entrance ports for delivering feed material to the tail flame of said plasma reactor;

means defining an outlet from said first reaction chamber having a smaller cross-sectional area than said inlet;

means forming a second reaction chamber having an inlet in fluid communication with the outlet of said first reaction chamber;

a single effluent outlet means formed in said second reaction chamber;

a valve cooperating with said single outlet means for varying the effective size thereof to vary the amount of effluent passing therethrough;

means forming a quenching chamber in fluid communication with and enclosing said single effluent outlet means;

means in said quenching chamber forming at least one quench medium discharging passageway spaced from and surrounding said single effluent outlet means and positioned to supply and direct quenching medium to effluent emerging from said effluent outlet means for condensing from said effluent particulate material having particle size characteristics functionally related to the distance between said quench medium discharging passageway and said effluent outlet means; and

means to collect such particulate material from said quenching chamber.

4,335,081

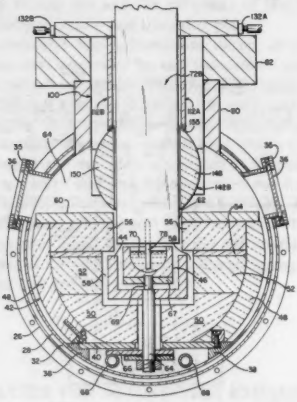
CRYSTAL GROWTH FURNACE WITH TRAP DOORS

Emanual M. Sachs, Watertown, and Brian H. Mackintosh, Lexington, both of Mass., assignors to Mobil Tyco Solar Energy Corporation, Waltham, Mass.

Continuation of Ser. No. 3,765, Jan. 15, 1979, abandoned. This application 1981, Ser. No. 232,570

Int. Cl.³ C30B *15/34*

U.S. Cl. 422—246 25 Claims



1. A furnace for use in growing crystals from a melt comprising:

enclosure means defining a heating chamber for containing a melt, said enclosure means having an upper side thereto;

means defining a port in said upper side of said enclosure means so as to provide access to said heating chamber;

means for heating a melt contained within said heating chamber;

closure support means mounted to said enclosure and extending vertically into said heating chamber;

closure means disposed within and rotatably mounted to said closure support means within said heating chamber for closing off said port;

remotely controlled means for rotating said closure means within said closure support means so as to selectively open or close off said port; and

a pulling mechanism for pulling a crystalline body from a melt in said heating chamber via said port.

4,335,082

METHOD OF DECREASING THE ORGANIC SUBSTANCE CONTENT OF ALUM EARTH PRODUCTION CYCLE PERFORMED ACCORDING TO THE BAYER TECHNOLOGY

Jozsef Matyasi, Budapest; Ferenc Toth, Almasfuzito-felso; Laszlo Revesz, Almasfuzito-felso; Benjaminne Toth, Almasfuzito-felso; Miklos Schlegel, Tata; Jozsef Zoldi, Budapest; Janosne Losonczi, Tata; Lajos Szoke, Almasfuzito-felso, and Maria Orban nee Kelemen, Budapest, all of Hungary, assignors to Magyar Aluminiumipari Troszt, Budapest, Hungary

Filed 1980, Ser. No. 201,722

Claims priority, application Hungary, 1979, AA 940

Int. Cl.³ C01F *7/06, 7/46*

U.S. Cl. 423—122 5 Claims

1. A method of reducing the organic substance content of the alum earth produced in a Bayer cycle, comprising caustifying with lime the soda present in the hydrate wash and/or in the soda salt solution of said Bayer cycle, removing the resulting precipitate, evaporating the resulting liquid to a total sodium oxide concentration of 200 to 400 g/l, separating the precipitated solid containing the organic impurities and removing it from the system, and recycling the remaining liquid.

4,335,083

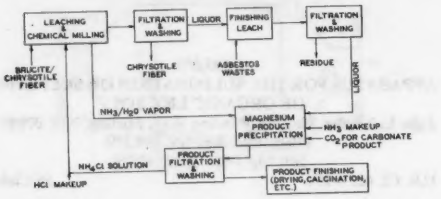
METHOD FOR LEACHING MAGNESIUM FROM MAGNESIUM HYDROXIDE-CONTAINING COMPOSITION

Robert F. Benson, St. Peterburg, Fla., assignor to Carey Canada Inc., Quebec, Canada

Filed 1981, Ser. No. 240,712

Int. Cl.³ C01F *5/20, 5/24*

U.S. Cl. 423—167 16 Claims



1. A method for leaching magnesium from brucite containing chrysotile asbestos fibers which comprises the steps of:

(a) contacting said asbestos fibers with an aqueous solution of an ammonium salt whose corresponding magnesium salt is soluble in said aqueous solution, said aqueous solution being a nonsolvent for a major portion of the remainder of said asbestos fibers, whereby a soluble product containing said soluble magnesium salt and ammonia and an insoluble product are formed, the magnesium of said soluble magnesium salt being derived from said brucite;

(b) removing a substantial portion of said ammonia from said aqueous solution;

(c) separating said aqueous solution containing said soluble magnesium salt from said insoluble product; and

(d) transforming the magnesium of said soluble magnesium salt into an insoluble magnesium product.

4,335,084

METHOD FOR REDUCING NO_x EMISSIONS FROM COMBUSTION PROCESSES

Thomas R. Brogan, Charlestown, Mass., assignor to Roldiva, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 106,534, Jan. 24, 1980. This application 1981, Ser. No. 275,096

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—235 6 Claims

1. A method for reducing the NO_x present in combustion gases which results from the combustion of fossil fuels with air, said method comprising the steps of

a. controlling the air/fuel mixture for combustion to obtain fuel rich combustion gases in the combustion zone;

b. maintaining or cooling the temperature of the combustion gas downstream of said combustion zone in a first zone at between about 2500° F. and 3000° F.;

c. injecting ammonia in a molar ratio of 1:1 to 4:1 (NH_3/NO_x) into the combustion gases at the first zone;

d. reducing the temperature of the combustion gases at a second zone to between 1900° F. and 2400° F.; and

e. injecting secondary air into the combustion gases at the second zone to complete combustion of the fuel.

4,335,085

PROCESS FOR THE PREPARATION OF PHOSPHORUS PENTACHLORIDE

Hans-Peter Rieck, and Jürgen Russow, both of Kelkheim, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed 1981, Ser. No. 239,455

Claims priority, application Fed. Rep. of Germany, 1980, 3008194

Int. Cl.³ C01B *25/10*

U.S. Cl. 423—300 17 Claims

1. A process for the preparation of highly pure phosphorus pentachloride in the form of a free-flowing crystalline powder by reaction of phosphorus trichloride with chlorine, which comprises carrying out the reaction in two stages, the first stage including phosphorus trichloride being combined with 0.1 to 0.999 times the molar amount of chlorine at a temperature of 0° to 150° C., while stirring, 0 to 0.9 times the amount of the phosphorus trichloride added being distilled off and the remainder thereby being converted into a PCl_3/PCl_5 crystal sludge comprising 50–99.9 mole % of phosphorus pentachloride, and the second stage including this sludge being reacted with an excess of chlorine at 0° to 150° C. to give phosphorus pentachloride.

4,335,086

HYDROXYAPATITE AND ITS PREPARATION

Michael Spencer, 34 Bayham Rd., Sevenoaks, Kent, United Kingdom

PCT No. PCT/GB79/00118, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00247, PCT Pub. Date 1980

PCT Filed 1979, Ser. No. 190,883

Claims priority, application United Kingdom, 1979, 30646/78

Int. Cl.³ C01B *25/32*

U.S. Cl. 423—308 6 Claims

1. A process for preparing hydroxyapatite, comprising the steps of

(a) adding an aqueous solution of $CaCl_2$ to an excess of sodium phosphate to produce an aqueous suspension of brushite;

(b) heating the aqueous suspension of brushite from step (a) at a temperature of between 60° and 95° C. and maintaining the pH of the heated system at from 6 to 7.5 by the addition of alkali to produce hydroxyapatite or a mixture of hydroxyapatite and octacalcium phosphate; and

(c) if octacalcium phosphate is present in the product of step (b), converting the octacalcium phosphate to hydroxyapatite by the further addition of alkali.

6. Essentially pure hydroxyapatite characterised by the capability of allowing a flow rate of from 40 to 80 ml/hour at room temperature in a 9×75 mm bed under a pressure head of 250 mm; a molar Ca/P ratio of from 1.49 to 1.62; a weight-specific binding capacity for bovine serum albumin of at least 30 mg/g; and a tRNA elution peak of at least 0.06 molar.

4,335,087

PROCESS FOR PREPARING CIS-$Pt(NH_3)_2Cl_2$

Richard N. Rhoda, Suffern, N.Y., assignor to MPD Technology Corporation, Wyckoff, N.J.

Division of Ser. No. 65,553, Aug. 16, 1979, Pat. No. 4,273,755. This application 1980, Ser. No. 206,883

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ C01G *55/00*

U.S. Cl. 423—413 4 Claims

1. A process for preparing cis-$Pt(NH_3)_2Cl_2$ by reacting cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$ with KCl comprising adding KCl rapidly to a solution of cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$ at room temperature, elevating the temperature of the reacting medium to about 70° C. for a period of time sufficient to maximize the reaction, cooling the resultant product while stirring to a temperature no lower then about 10° C., cis-$Pt(NH_3)_2Cl_2$ having precipitated from solution, separating the precipitate from solution substantially immediately.

4,335,088

PROCESS FOR PRODUCING AMMONIUM CARBONATE

Vladimir M. Efimov, ulitsa Tsjurupy, 8, korpus 2, kv. 1; Tatyana N. Naumova, ulitsa Festivalnaya, 27, kv. 39; Irina G. Bykova, Otkrytoe shosse, 1, korpus 7, kv. 66, all of Moscow, and Larisa A. Stroganova, poselok Firsanovka, ulitsa Rechnaya, 6, kv. 14, Moskovskaya oblast, all of U.S.S.R.

Filed 1981, Ser. No. 238,615

Int. Cl.³ C01C *1/26*

U.S. Cl. 423—420 1 Claim

1. In a process for producing ammonium carbonate salts comprising interaction of gaseous ammonia, gaseous carbon dioxide and water vapor, the improvement wherein hydrogen halide is introduced into the reaction zone in a concentration in said carbon dioxide ranging from 1×10^{-3} to 1×10^{-6} percent by mass.

4,335,089

PROCESS FOR PRODUCING CARBON FIBERS

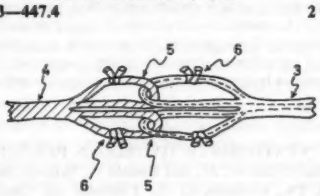
Kunio Maruyama, and Akira Okazaki, both of Okayama, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Filed 1980, Ser. No. 182,611

Claims priority, application Japan, 1979, 54-112314

Int. Cl.³ D01F *9/14, 9/22*

U.S. Cl. 423—447.4 2 Claims



1. A method for the continuous production of carbon fibers from two or more cheese-like articles of organic polymer fibers having yarn ends at the top portion and tail portion, characterized by preliminarily heat-treating the yarn ends of each cheese-like article so that said yarn end portions have a elongation of 5% or more, a tensile strength of 1 gram/denier or more, and a specific gravity of 1.30 to 1.45; connecting the tail end of a cheese-like article with the top end of another cheese-like article in such a manner that the tail and top ends are divided into at least two portions and connected in the form of loop portions and knot portions, said loop portions and knot portions being disposed at different positions; and thereafter causing the yarn to pass through heat-treating furnaces.

4,335,090

PREPARING CALCIUM HYPOCHLORITE FROM TRIPLE SALT

Walter J. Sakowski, Cleveland; Larry G. Carty, Charleston, and Craig A. Foster, Cleveland, all of Tenn., assignors to Olin Corporation, New Haven, Conn.

Filed 1981, Ser. No. 240,339

Int. Cl.³ C01B *11/06*

U.S. Cl. 423—474 9 Claims

1. In a process for preparing granular calcium hypochlorite particles, wherein hydrated triple salt crystals of calcium hypochlorite, sodium hypochlorite, and sodium chloride are reacted with a chlorinated lime slurry to form particles of calcium hypochlorite dihydrate, the resulting slurry is processed to separate the calcium hypochlorite dihydrate particles and the resulting particles are dried to form granular calcium hypochlorite particles, the improvement which comprises:

a. continuously feeding triple salt crystals and a chlorinated

lime slurry to a paste reactor containing an aqueous paste slurry of calcium hypochlorite dihydrate particles to form additional aqueous paste slurry of calcium hypochlorite dihydrate particles,

b. continuously removing a portion of the paste slurry from the paste reactor,

c. continuously dividing the removed portion of paste slurry into a first part and a second part,

d. continuously recycling said first part of the paste slurry to the paste reactor,

e. separating said second part into particles of calcium hypochlorite in the form of a wet cake and a resulting clarified mother liquor, and

f. drying said wet cake to form granular particles of calcium hypochlorite.

4,335,091

PROCESS FOR THE MANUFACTURE OF HYDROXYLAMMONIUM PERCHLORATE

Eugen Scholz, Garbsen, and Wolfgang Sievert, Wunstorf, both of Fed. Rep. of Germany, assignors to Riedel-de Haen Aktiengesellschaft, Seelze/Hannover, Fed. Rep. of Germany

Filed 1981, Ser. No. 281,844

Claims priority, application Fed. Rep. of Germany, 1980, 3026293

Int. Cl.³ C01B *11/16*

U.S. Cl. 423—476 **2 Claims**

1. A process for the manufacture of hydroxylammonium perchlorate comprising the steps of

(a) loading a cation exchanger with a perchlorate-free hydroxylammonium salt dissolved in water; and

(b) eluating the loaded exchanger with an aqueous solution of a perchlorate ions - donating compound to obtain an aqueous hydroxylammonium perchlorate solution.

4,335,092

SYNTHESIS OF HYDROGEN PEROXIDE

Augustine I. Dalton, Jr., and Ronald W. Skinner, both of Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed 1980, Ser. No. 195,827

Int. Cl.³ C01B *15/02*

U.S. Cl. 423—584 **9 Claims**

1. In the process of preparing hydrogen peroxide by contacting hydrogen and oxygen with a palladium catalyst on a solid support in the presence of a liquid medium, the improvement wherein the liquid medium is methanol without added water.

8. In the process of preparing hydrogen peroxide by contacting hydrogen and oxygen with a palladium catalyst on a solid support in the presence of a liquid medium, the improvement wherein the liquid medium is aqueous methanol containing at least 75% by volume of methanol and 0.1-1.0% by weight of formaldehyde.

4,335,093

PROCESS OF CONVERTING WIND ENERGY TO ELEMENTAL HYDROGEN AND APPARATUS THEREFOR

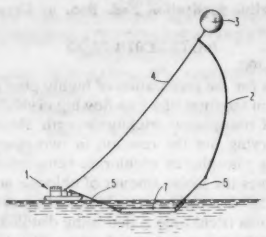
Robert E. Salomon, Dresher, Pa., assignor to Temple University, Philadelphia, Pa.

Filed 1980, Ser. No. 198,449

Int. Cl.³ F03B *13/00*

U.S. Cl. 423—644 **8 Claims**

1. An apparatus for converting wind energy to elemental hydrogen comprising incombination, an ocean going vessel, water driven propeller means fixedly mounted below the waterline and outboard of the hull of said vessel, D.C. electrical generating means carried upon said vessel, linkage means connecting said water driven propeller means in driving relationship to said generator means, water electrolysis means carried upon said vessel, electrical connecting means adapted to supply said electrolysis means with the output of said generating means, metal alloy storage means carried upon said vessel, a hydride forming metal alloy contained in said storage means, conduit means adapted to collect the hydrogen output of said electrolysis means and to deliver said output to said metal alloy storage means, gas compression means positioned within said conduit, a sail carried by said vessel, tether lines



adapted to be attached to said sail, power winch means carried upon said vessel adapted to mechanically ease and retract said tether lines when said sail is aloft and attached to said tether lines, a lighter than air balloon having a lifting capacity sufficient to carry said sail aloft, attached to said sail.

4,335,094

MAGNETIC POLYMER PARTICLES

Klaus H. Mosbach, Lackalänga 31-38, S-240 20 Furulund, Sweden

PCT No. PCT/SE78/00001, § 371 Date 1979, § 102(e) Date 1979, PCT Pub. No. W078/00005, PCT Pub. Date 1978

PCT Filed 1978, Ser. No. 21,603

Int. Cl.³ G01N *33/56*

U.S. Cl. 424—1 **39 Claims**

1. Magnetic polymer particles as carriers of biologically active substance comprising

particles of a polymer having a lattice or pores;

a biologically active substance associated with said polymer particles, and

magnetic material deposited in said lattice or pores wherein said magnetic material is deposited by contacting the polymer particles with a colloidal solution comprising said magnetic material.

4,335,095

INDIUM-111 OXINE COMPLEX COMPOSITION

James D. Kelly, Buckinghamshire, England, assignor to The Radiochemical Centre Limited, England

Filed 1980, Ser. No. 128,923

Claims priority, application United Kingdom, 1979, 7909867

Int. Cl.³ A61K *49/00, 43/00*

U.S. Cl. 424—1 **8 Claims**

1. An indium-111 composition comprising a complex of indium-111 with a quinoline compound carrying a hydroxyl group in the 8-position, present in an aqueous medium which also contains 10 μg/ml to 1000 μg/ml of a surface active agent.

4,335,096

ABSORBENT FOR USE IN PASSIVE AGGLUTINATION TEST

Yoshikatsu Tsuji, Kawasaki, Japan, assignor to Fujizoki Pharmaceutical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 122,998, Feb. 20, 1980, abandoned. This application 1980, Ser. No. 188,894

Claims priority, application Japan, 1979, 54/19092

Int. Cl.³ G01N *1/28, 1/34, 33/50, 33/54*

U.S. Cl. 424—12 **11 Claims**

1. An absorbent for use in passive agglutination tests comprising erythrocytes of animals or cells of microorganisms

fixed with an aldehyde and, on a dry weight basis, for every 100 parts by weight of carrier, from 100 to 400 parts by weight of aluminum hydroxide and 50 to 200 parts by weight of calcium phosphate.

4,335,097

STABILIZED, PROSTAGLANDIN-CONTAINING TABLETS WITH CONTROLLED RATE OF SOLUBILITY, FOR LOCAL USE AND PROCESS FOR THE PREPARATION THEREOF

Agoston David; Tibor Horvath; Csaba Kiss; Gabor Nagy; Kalman Simon; Ilona Simonidesz nee Vermes; Agnes Udvardi, and Sandor Virag, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Budapest, Hungary

Filed 1981, Ser. No. 225,361

Int. Cl.[3] **A61K** *9/00, 31/215, 31/19*

U.S. Cl. 424—14 **9 Claims**

1. A stablized, prostaglandin-containing tablet with controlled rate of solubility, for local use, comprising 0.2 to 20% by weight of at least one natural or synthetic prostaglandin, 0.4 to 40% by weight of a non-toxic buffer for adjusting the pH of the liquid film formed on the surface of the solid phase due to air humidity to 3 to 5, 1 to 50% by weight of stearic acid, 0 to 15% by weight of an alkali earth metal stearate, 10 to 95% by weight of lactose and/or mannite, 0 to 15% by weight of a further granulation aid, 1 to 30% by weight of a disintegrating agent and optionally 0.5 to 10% by weight of a flavoring and aromatizing substance, tabletted under a pressure of 500 to 2000 kp/cm^2.

3. A process for the preparation of stabilized, prostaglandin-containing tablets with controlled rate of solubility, for local use, which comprises granulating 0.2 to 20% by weight of at least one natural or synthetic prostaglandin, 0.4 to 40% by weight of a non-toxic buffer, which adjusts the pH of the liquid film formed on the surface of the solid phase due to air humidity, to 3 to 5, 1 to 50% by weight of stearic acid, 0 to 15% by weight of an alkali metal stearate, 10 to 95% by weight of lactose and/or mannite, 0 to 15% by weight of a further granulation aid, 1 to 30% by weight of a disintegrating agent and optionally 0.5 to 10% by weight of a flavouring and aroma substance, and tabletting the granulate obtained under a pressure of 500 to 2000 kp./cm^2.

4,335,098

ACYLATED FURANYL AND THIENYL ACRYLIC ACIDS

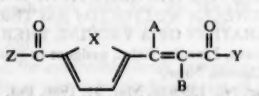
Roger A. Parker, Cincinnati, Ohio, assignor to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 181,917, Aug. 27, 1980, abandoned. This application 1981, Ser. No. 267,236

Int. Cl.[3] **A61K** *31/38, 31/34;* **C07D** *307/12, 333/24*

U.S. Cl. 424—275 **8 Claims**

1. A compound of the structural formula



and the pharmaceutically acceptable amine and metal salts thereof, wherein

X is oxygen or a divalent sulfur atom;

A is hydrogen or lower alkyl;

B is hydrogen or lower alkyl;

Y is OR_1, NR_1R_1, SR_1 or $—SCH_2CH_2NHCOR$ wherein R_1 is hydrogen or lower alkyl and R is lower alkyl; and

Z is a saturated or olefinically unsaturated hydrocarbyl moiety having 3 to 20 carbon atoms.

4,335,099

EMPLOYMENT OF ENTERIC COATED IGA FOR HYPOPROTEINEMIA IN INTESTINAL INFECTIOUS DISEASES

Satoshi Funakoshi, Katano; Katuhiro Uriyu, Sakai; Yahiro Uemura; Katashi Nakane, both of Hirakata, and Akio Yamane, Takatsuki, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Continuation of Ser. No. 667,193, Mar. 15, 1976, abandoned. This application 1980, Ser. No. 185,929

Claims priority, application Japan, 1975, 50-64713

Int. Cl.[3] **A61K** *9/32, 9/34, 9/36, 9/40, 31/78, 31/79, 31/74, 39/00*

U.S. Cl. 424—32 **6 Claims**

1. A method of treating hypoproteinemia caused by diarrhea and anorexia due to bacillary intestinal infectious diseases, said method comprising orally administering an effective amount therefor of an enteric film-coated IgA rich gamma globulin originated in human serum or plasma to a person suffering from hypoproteinemia.

4. The method as claimed in claim **1** wherein said pharmaceutical dosage has a subcoating of a water-soluble film and a top enteric coating of an organic solvent soluble film.

4,335,100

METHOD OF INHIBITING DEXTRANSUCRASE AND ORAL COMPOSITIONS FOR USE THEREIN

John F. Robyt, Ames, Iowa, and John N. Zikopoulos, Phoenix, Ariz., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Continuation-in-part of Ser. No. 32,398, Apr. 23, 1979, Pat. No. 4,228,150. This application 1980, Ser. No. 175,635

Int. Cl.[3] **A61K** *7/16, 9/68, 31/10;* **C07H** *5/02*

U.S. Cl. 424—48 **14 Claims**

1. The method of inhibiting dextransucrase synthesis of dextran from sucrose, comprising introducing into an aqueous substrate containing sucrose and dextransucrase an inhibitory amount of a substituted sucrose compound, said substituted sucrose compound having bonded to the 5-position ring carbon a group selected from the class consisting of $—CH_2X$, $=CH_2$, —CHO, and —H, wherein X is selected from the class consisting of —Br, —I, $—N_3$, $—NH_2$, $—OCH_3$, and —H.

4,335,101

ORAL HYGIENE ENZYMES AND METHOD FOR PREPARATION

Thomas H. Stoudt, Westfield, and Karl H. Nollstadt, Clark, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 170,642, Aug. 10, 1971, abandoned. This application 1973, Ser. No. 372,137

Int. Cl.[3] **A61K** *7/28;* **C12N** *9/24*

U.S. Cl. 424—50 **7 Claims**

1. A dental treating composition comprising a dental treating carrier, dextranase, and an effective amount of an enzyme capable of hydrolyzing a streptococci derived dental plaque glucan having a majority of α-(1→3)glucosidic bonds.

3. A process for preparing an enzyme capable of hydrolyzing a streptococci devised dental plaque glucan having a majority of α-(1-3)glucosidic bonds which comprises:

(a) growing a microorganism selected from the the group consisting of a fungus, NRRL No. 5305; a Streptomyces sp., NRRL No. 5306; a Streptomyces sp., NRRL no. 5307; a Streptomyces sp., NRRL No. 5308; a Streptomyces sp., NRRL No. 5309; a Bacillus sp., NRRL No. B-5300; a Bacillus sp., NRRL No. B-5301; a Bacillus sp., NRRL No. B-5302 a Bacillus sp., NRRL No. B-5303; or a Corynebacterium sp., NRRL No. B-5310; in a suitable nutrient medium.

(b) removing insolubles from the broth; and

(c) isolating the protein from the clarified broth, which protein comprises the desired enzyme.

4,335,102

ORAL COMPOSITION FOR CARIES PROPHYLAXIS

Syozi Nakashima, Hatano; Tosiyuki Ozawa, Minami-ashigara; Takeshi Naganuma, Odawara; Takashi Ujiie, Ninomiya; Satoshi Hayashi, Hiratsuka, and Yoshihito Ochiai, Fujisawa, all of Japan, assignors to Lion Corporation, Tokyo, Japan

Filed 1980, Ser. No. 185,964

Claims priority, application Japan, 1979, 54-121194

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.[3] A61K *7/18, 9/68*

U.S. Cl. 424—52 16 Claims

1. An oral composition for caries prophylaxis, comprising: a highly soluble stannous compound selected from the group consisting of stannous fluoride, stannous chloride, stannous chloride fluoride, sodium stannous fluoride, potassium stannous fluoride, stannous acetate, stannous hexafluorozirconate, stannous sulfate, stannous tartrate, stannous gluconate and mixtures thereof, said highly soluble stannous compound being present in the range of 0.03% to 5% by weight of the composition as stannous tin; a difficulty soluble stannous compound selected from the group consisting of stannous pyrophosphate, stannous metaphosphate, stannous oxide, stannous oxalate, stannous phosphate and mixtures thereof, said difficulty soluble stannous compound being present in the range of 0.05% to 10% by weight of the composition as stannous tin; and 0.1% to 20% by weight of the composition of a phytic acid compound selected from the group consisting of phytic acid, sodium phytate, potassium phytate, lithium phytate, ammonium phytate, magnesium phytate, zinc phytate, calcium phytate, aluminum phytate, phytin, double salts thereof and mixtures thereof, said composition being acidic.

4,335,103

MULTIPHASE COSMETIC COMPOSITION

Patricia I. M. Barker, Apex; Nathan A. Ziskin, and Michael J. Grossfeld, both of Raleigh, all of N.C., assignors to Almay, Inc., Apex, N.C.

Filed 1977, Ser. No. 781,573

Int. Cl.[3] A61K *7/021, 7/42, 7/48, 7/50*

U.S. Cl. 424—59 15 Claims

1. A multiphase cosmetic composition comprising two generally separately stable and visual distinct gel and cream phases combined to form a cosmetic composition; said cream phase being an emulsified composition and including an emulsifier, a thickening agent, an oil phase, and water, with the oil phase making up generally 10–80% by weight of said cream phase and the water making up generally 20–70% by weight of said cream phase; said gel phase including a thickening agent and a phase including water soluble material ranging from 50–99% by weight of said gel phase; and wherein said cream and gel phases are disposed side by side throughout the multiphase cosmetic composition formed by said cream and gel phases.

10. A duophase cleansing cream composition including two generally separate and stable composition phases intimately combined to yield a cleanser type cosmetic composition that may be applied to the subject's face or body in one single application, said duophase cleansing cream composition comprising: a water miscible cleansing cream phase composition having a pH in the range of 5–8 and a viscosity of 40,000 to 150,000 centipoise and wherein said cream phase composition itself includes an oil phase making up about 40–65% by weight of the cream phase composition, water making up about 20–50% by weight of the cream phase composition, a thickening agent making up about 0.25–1.70% by weight of the cleansing cream composition, and an emulsifier making up about 1.00 to 9.00% by weight of the cleansing cream composition; a water miscible gel phase composition having a pH in the range of 5–8 and a viscosity of 40,000 to 150,000 centipoise and wherein said gel phase composition itself includes water which makes up about 80–90% by weight of the gel phase composition, and a thickening agent making up about 0.50–4.00% by weight of said gel phase composition; and wherein said cream phase composition and said gel phase composition are intimately combined throughout to form a continuous duophase cosmetic composition with the cream and gel phases remaining generally stable, separate, and visually distinct relative to each other but combined in a swirl like pattern such that the cream and gel phases occur and are present throughout the total formed duophase composition.

4,335,104

ANHYDROUS MULTI-PURPOSE MOISTURIZING COMPOSITION

Jon S. VanCleave, West Des Moines, Iowa, assignor to United Chemical Corporation, Des Moines, Iowa

Filed 1978, Ser. No. 934,097

Int. Cl.[3] A61K *7/42, 31/60, 47/00*

U.S. Cl. 424—59 11 Claims

1. A multi-purpose anhydrous topical cosmetic composition comprising from about 20% to about 90% of a water insoluble non-ionic surfactant or blend of surfactants, the molecules of which have a hydrophilic portion and a lipophilic portion and have a hydrophilic-lipophilic balance of 12 or less, in combination with a small but effective amount of an active ingredient which is soluble in said surfactant.

4,335,105

SPECIFIC ANTIGEN VACCINE FOR TGE IN SWINE

Patricia M. Gough, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Continuation-in-part of Ser. No. 253,070, Apr. 10, 1981, abandoned, which is a continuation of Ser. No. 93,070, Nov. 13, 1979, abandoned. This application 1981, Ser. No. 262,768

Int. Cl.[3] A61K *39/12, 39/215*

U.S. Cl. 424—89 10 Claims

1. A vaccine for protecting swine against transmissable gastroenteritis (TGE), wherein the vaccine is in an injectable dose form including an adjuvant and is characterized by containing a protection-effective amount of a specific antigenic protein (SPA) which has been separated from TGE virus, said SPA being soluble in water and having a buoyant density of 1.02 to 1.03 grams per milliliters (gms/ml) as determined in aqueous sucrose, and being further characterized by its lactogenic immunizing property of protecting the baby pig offspring against TGE infection when administered to a TGE non-immune pregnant sow.

4,335,106

PROCESSES FOR THE GROWTH OF A MODIFIED *PASTEURELLA MULTOCIDA* BACTERIA AND PREPARATION OF A VACCINE THEREFROM

Carrell J. Kucera, Lincoln, Nebr., assignor to Norden Laboratories Inc., Lincoln, Nebr.

Division of Ser. No. 135,828, Mar. 31, 1980, Pat. No. 4,293,545. This application 1981, Ser. No. 255,144

Int. Cl.[3] A61K *39/02*

U.S. Cl. 424—92 10 Claims

1. A process for preparing a modified live *Pasteurella multocida* vaccine capable of inducing immunity in bovine, porcine and ovine animal species without serious side effects which comprises chemically modifying virulent *Pasteurella multocida* strain ATCC No. 31609 by passaging it in the presence of an acridinium salt and combining the modified bacteria with a carrier.

4,335,107
MIXTURE TO PROTECT POULTRY FROM SALMONELLA

Glenn H. Snoeyenbos, 42 Hills Rd., Amherst, Mass. 01002; Olga M. Weinack, 179 Woodbridge St., South Hadley, Mass. 01075, and Charles F. Smyser, 49 Harlow Dr., Amherst, Mass. 01002

Filed 1978, Ser. No. 912,829
Int. Cl.³ A61K *35/12, 35/66, 35/74, 39/295*
U.S. Cl. 424—93 47 Claims

1. A mixture of avian intestinal microflora treated to prevent inactivation thereof,

said microflora having the property of blocking subsequent colonization in the intestinal tract of poultry by paratyphoid salmonella,

said mixture being substantially free of pathogens.

4,335,108
PAULOMYCIN A AND B AND PREPARATION THEREOF

Alexander D. Argoudelis, Portage; Vincent P. Marshall, Kalamazoo, and Leroy E. Johnson, Kalamazoo Township, Kalamazoo County, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed 1980, Ser. No. 180,682
Int. Cl.³ A61K *35/00;* C12P *1/06;* C12N *1/20*
U.S. Cl. 424—117 10 Claims

1. Essentially pure crystalline paulomycin A, which is characterized as follows:

(a) active against Gram-positive bacteria;

(b) melting point: 95°–105° C.;

(c) optical rotation $[\alpha]_D^{25}$, −22° (c, 0.9555, methanol); $[\alpha]_D^{25}$, +27° (C, 0.9435, $CHCl_3$);

(d) elemental analysis: C, 48.77; H, 5.73; N, 3.29; S, 4.39; O (by difference), 37.82;

(e) titration: pKa, 7.4; Eq.wt. 808, in 60% aqueous EtOH; titrant, KOH;

(f) a characteristic infrared absorption spectrum as shown in FIG. 1 of the drawings;

(g) a characteristic ultraviolet absorption spectrum as shown in FIG. 2 of the drawings; and,

(h) a characteristic proton magnetic resonance spectrum as shown in FIG. 3 of the drawings, or inorganic cationic salts thereof.

4,335,109
WATER REPELLENT AQUEOUS WOOD TREATING SOLUTIONS

Robert E. Hill, Webster Groves, Mo., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 96,333, Nov. 21, 1979, abandoned. This application 1980, Ser. No. 216,123
Int. Cl.³ A01N *59/20, 59/06*
U.S. Cl. 424—140 2 Claims

1. A method for controlling fungi consisting essentially of treating said fungi with a fungicidal amount of an aluminum halohydrate wherein the halogen is selected from chlorine, bromine and iodine and a water soluble salt of a mono or divalent cation selected from copper, zinc, barium, lithium, lead, mercury, cadmium, calcium, sodium, and potassium, and a monovalent anion selected from formate, acetate, haloacetate, acrylate, methacrylate, propionate, chloro and bromopropionate, butyrate, isobutyrate, nitrate, sulfamate, iodide, bromide, and chloride, said water soluble salt excluding the sulfamates, nitrates, chlorides and bromides of sodium, potassium, lithium and calcium.

4,335,110
PHARMACEUTICAL COMPOSITIONS OF SANGUINARIA GALANGAL AND ZINC CHLORIDE

Keith R. Collins, Estoril, Portugal, assignor to Orewa Inc., Estoril, Portugal

Filed 1980, Ser. No. 179,159
Claims priority, application United Kingdom, 1979, 7929364
Int. Cl.³ A01N *59/16, 65/00;* A61K *33/30, 35/78*
U.S. Cl. 424—145 11 Claims

7. A method of treatment of peridontal or carious disease, comprising administering to the gums or teeth of a patent a pharmacologically effective amount of the composition as claimed in claim 1 and allowing said composition to remain in contact with the gums or teeth for a period of time sufficient to effectively treat said disease.

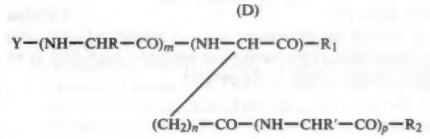
4,335,111
COMPOUNDS ASSOCIATING PEPTIDYL OF AMINOACYL RESIDUES TO LIPOPHILIC GROUPS AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAID NEW COMPOUNDS

Pierre Lefrancier, Bures sur Yvette; Edgar Lederer, Sceaux; Jean Choay, and Louis Chedid, both of Paris, all of France, assignors to Agence National de Valorisation de la Recherche (ANVAR), Neuilly Sur Seine, France

Filed 1979, Ser. No. 106,022
Claims priority, application United Kingdom, 1978, 49887/78
Int. Cl.³ A61K *37/00, 37/02;* C07C *103/52*
U.S. Cl. 424—177 36 Claims

1. A compound of formula

(D) (I)



in which

(NH—CHR—CO) is glycyl, beta-alanyl, L-alanyl, L-seryl, L-valyl or L-prolyl and (NH—CHR′—CO) is glycyl, L-alanyl, beta-alanyl, L-arginyl, L-asparagyl, L-cystyl, L-glutaminyl, L-histidyl, L-hydroxyprolyl, L-isoleucyl, L-leucyl, L-methionyl, L-phenylalanyl, L-prolyl, L-seryl, L-threonyl, L-tryptophyl and L-valyl,

m is zero or 1,

n is 1 or 2,

p is 0 or 1,

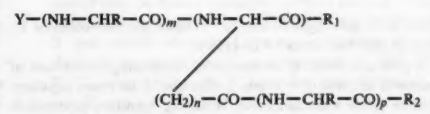
Y is either H or an acyl group with up to 4 carbon atoms,

R_1 is selected from —OH, alkoxy groups up to $—OC_9H_{19}$, NH_2, or an amino group mono or disubstituted by lower alkyl group having up to 9 carbon atoms,

R_2 is a lipophilic group having the formula —OX, $—OCH_2—CH_2O—COX$ or $—OCH_2—CHOH—CH_2OX$ wherein X is an alkyl linear or branched, saturated or unsaturated group, optionally substituted with hydroxy, carbonyl, carboxyl or aryl groups or a cyclopropane ring, said X containing at least 30 carbon atoms, or the pharmaceutically acceptable salts thereof.

31. The therapeutic method for controlling bacterial infection which comprises administering a biologically active composition comprising a compound of the formula:

(D) I



in which

(NH—CHR—CO) is glycyl, beta-alanyl, L-alanyl, L-seryl, L-valyl or L-prolyl and (NH—CHR'—CO) is glycyl, L-alanyl, beta-alanyl, L-arginyl, L-asparagyl, L-cystyl, L-glutaminyl, L-histidyl, L-hydroxyprolyl, L-isoleucyl, L-leucyl, L-methionyl, L-phenylalanyl, L-prolyl, L-seryl, L-threonyl, L-tryptophyl and L-valyl,

m is zero or 1,

n is 1 or 2,

p is 0 or 1,

Y is either H or an acyl group with up to 4 carbon atoms,

R_1 is selected from —OH, alkoxy groups up to —OC_9H_{19}, NH_2, or an amino group mono or disubstituted by lower alkyl group having up to 9 carbon atoms,

R_2 is a lipophilic group having the formula —OX, —OCH_2—CH_2O—COX or —OCH_2CHOH—CH_2OX wherein X is an alkyl linear or branched, saturated or unsaturated group, optionally substituted with hydroxy, carbonyl, carboxyl or aryl groups or a cyclopropane ring, said X containing at least 30 carbon atoms, or the pharmaceutically acceptable salts thereof in a biologically acceptable carrier, the composition being administered in an effective amount to control the bacterial infection.

4,335,112

METHOD OF TREATING MITES IN POULTRY

Joseph R. Childers, 1123 N. Main St., Mocksville, N.C. 27028

Filed 1981, Ser. No. 245,568

Int. Cl.³ A61K *37/00*

U.S. Cl. 424—177 **5 Claims**

1. A method for eliminating mites in poultry infected with mites comprising administering the antibiotic bacitracin in an effective amount orally to the poultry.

4,335,113

TRITERPENIC SAPONIN HAVING PHARMACOLOGICAL POTENCY

Henri Combier, Rilleux le Pape; Gisele Prat, Talence, and Henri Pontagnier, Pessac, all of France, assignors to Laboratoires Sarget, Merignac, France

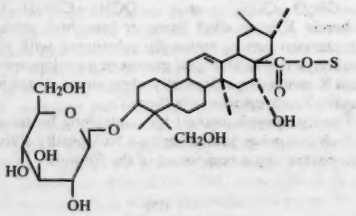
Filed 1980, Ser. No. 148,932

Claims priority, application France, 1979, 79 11964

Int. Cl.³ A61K *31/70*; **C07H** *15/20*

U.S. Cl. 424—180 **7 Claims**

1. A substantially pure saponin which is the ester of O-β-D-glycosyl-3β-caulophyllogenin and an oligosaccharide comprising two units of L-rhamnose and two units of D-xylose having the formula



wherein S is the oligosaccharide comprising two units of L-rhamnose and two units of D-xylose.

7. A pharmacological composition comprising an amount of the saponin according to claim **1** effective to increase capillary resistance while simultaneously reducing capillary permeability and a pharmaceutically acceptable diluent.

4,335,114

1-N-ALKYLSISOMICIN DERIVATIVES, THEIR PRODUCTION AND THEIR MEDICINAL USE

Eckart Voss, Cologne; Karl G. Metzger, Wuppertal; Hans-Joachim Zeiler, Velbert; Uwe Petersen, Leverkusen, and Peter Stadler, Haan, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

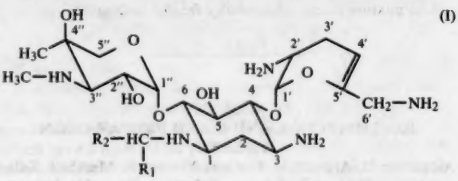
Filed 1980, Ser. No. 161,527

Claims priority, application Fed. Rep. of Germany, 1979, 2928183

Int. Cl.³ A61K *31/71*; **C07H** *15/22*

U.S. Cl. 424—180 **17 Claims**

1. A compound which is a sisomicin derivative of the formula



(I)

or a pharmaceutically acceptable salt thereof, in which

R_1 is a C_1 to C_6 alkyl group, substituted by hydroxyl, C_1 to C_4 alkoxy, amino, C_1 to C_4 alkylamino, di-C_1 to C_4 alkylamino, C_1 to C_4 alkylcarbonyl, C_1 to C_4 alkylcarbonylamino, N-C_1 to C_4 alkyl-N-C_1 to C_4 alkylcarbonylamino, carboxyl, C_1 to C_4 alkoxy-carbonyl, aminocarbonyl, C_1 to C_4 alkylamino-carbonyl or di-C_1 to C_4 alkylaminocarbonyl and R_2 is C_1 to C_6 alkyl which is unsubstituted or substituted by hydroxyl, C_1 to C_4 alkoxy, amino, C_1 to C_4 alkylamino, di-C_1 to C_4 alkylamino, C_1 to C_4 alkylcarbonyl, C_1 to C_4 alkyl-carbonylamino, N-C_1 to C_4 alkyl-N-C_1 to C_4 alkylcarbonylamino, carboxyl, C_1 to C_4 alkoxycarbonyl, aminocarbonyl, C_1 to C_4 alkylaminocarbonyl or di-C_1 to C_4 alkylaminocarbonyl or radical R_1-C-R_2 denotes a 4-hydroxycyclohex-1-yl group or a piperidin-4-yl group.

14. A method of combating bacterial infections in warm-blooded animals which comprises administering to the animals an antibacterially effective amount of an active compound according to claim **1** either alone or in admixture with a diluent in the form of medicament.

4,335,115

ANTI-ACNE COMPOSITION

Edward D. Thompson; Stephen B. Carter, both of Cincinnati, and Gary L. Manring, Oxford, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 737,315, Nov. 1, 1976, abandoned. This application 1977, Ser. No. 842,767

Int. Cl.³ A61K *31/71*

U.S. Cl. 424—181 **2 Claims**

1. A water-free antimicrobial composition for topical application which consists essentially of:

(1) from about 2% to about 5% erythromycin;

(2) from about 1% to about 5% glycerol monooleate;

(3) from about 30% to about 45% ethanol; and

(4) about 45% to about 60% isopropyl myristate.

4,335,116

MINERAL-CONTAINING THERAPEUTIC COMPOSITIONS

James R. Howard, Brawley, Calif., assignor to University Patents, Inc., Norwalk, Conn.

Filed 1980, Ser. No. 194,808

Int. Cl.³ A61K *31/68, 31/315*

U.S. Cl. 424—201 **19 Claims**

1. A stable aqueous solution adpated for substantially non-

inflammatory, non-immunogenic parenteral administration to domesticated animals to enhance micromineral-dependent metabolic function and facilitate resistance to infectious disease, said aqueous solution consisting of:

(a) a water soluble source of selenium ions in the form of an organometallic complex with an amino acid metal-ion-complexing agent; and,

(b) water soluble sources of zinc, copper, manganese and chromium ions in the form of organometallic complexes with ethylenedinitrilotetraacetic acid,

said stable aqueous solution containing, per milliliter volume, from about 0.1 to about 25 mg zinc ions, from about 0.1 to about 10.0 mg copper ions, from about 0.1 to about 20.0 mg manganese ions, from about 0.1 to about 5.0 mg chromium ions, and from about 0.1 to about 12.0 mg selenium ions.

4,335,117

1-HYDROXY-2,2,2-TRICHLOROETHANE-THIONO-PHOSPHONIC ACID DIMETHYL ESTERS AS INSECTICIDE

Reimer Cölln, Wuppertal; Wilhelm Sirrenberg, Sprockhövel; Wolfgang Behrenz, Overath-Steinenbrueck, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

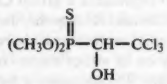
Continuation of Ser. No. 665,344, Mar. 9, 1976, abandoned. This application 1977, Ser. No. 865,084

Claims priority, application Fed. Rep. of Germany, 1975, 2512375

Int. Cl.[3] **C07F** *9/40;* **A01N** *57/20*

U.S. Cl. 424—217 **2 Claims**

1. The compound 1-hydroxy-2,2,2-trichloroethane-thionophosphonic acid dimethyl ester of the formula



having a boiling point of 116° C./2 mm Hg.

2. A method of combating arthropods which comprises applying to the arthropods or an arthropod habitat an arthropodicidally effective amount of a compound according to claim 1.

4,335,118

INSECTICIDAL α-CYANO-3-PHENOXY-BENZYL-2-(4-AZIDOPHENYL)-3-METHYLBUTYRATES

Hanspeter Fischer, Bottmingen; Rudolph C. Thummel, Courgenay, and Rudolf Wehrli, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

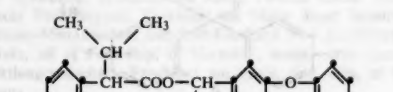
Filed 1980, Ser. No. 195,712

Claims priority, application Switzerland, 1979, 9335/79; 1980, 4332/80

Int. Cl.[3] **A01N** *47/08;* **C07C** *69/76, 121/86*

U.S. Cl. 424—226 **5 Claims**

1. A compound of the formula



wherein X_1 is hydrogen, fluorine or chlorine.

2. A method for controlling insects and acarids which comprises applying to the locus thereof an insecticidally or acaricidally effective amount of a compound according to claim 1.

4,335,119

QUICK-ACTING DIURETIC COMPOSITIONS

Andreas Johnsen, Griesheim, Fed. Rep. of Germany, assignor to Rohm, Pharma GmbH, Darmstadt, Fed. Rep. of Germany

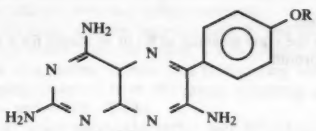
Filed 1979, Ser. No. 25,586

Claims priority, application Fed. Rep. of Germany, 1978, 2815442

Int. Cl.[3] **A61K** *31/505, 31/52, 31/625*

U.S. Cl. 424—229 **3 Claims**

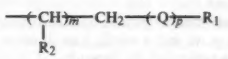
1. A diuretically active pharmacological composition, which is effective to produce a sodium uretic effect and at the same time a potassium neutral diuresis, which comprises 4-chloro-N-furfuryl-5-sulfamoyl anthranilic acid (furosemide) together with at least one compound of formula I:



wherein

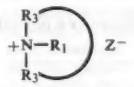
R is a radical R′, wherein:

R′ is selected from the group consisting of a radical of the formula:



wherein

R_1 is hydrogen, methyl or ethyl, R_2 is a OH group, hydrogen or an alkyl group with 1 to 4 carbon atoms, Q is oxygen, sulfur or a radical of the formula $—NR_3$, wherein R_3 has the same meaning as R_1, or Q together with the radical R_1 forms an ammonium ion of the formula



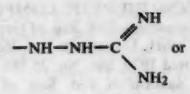
or

Q together with the radical R_1 forms a heterocyclic ring selected from the group consisting of pyrrolidinyl, piperidinyl, morpholinyl and piperazinyl, wherein Z^- is a pharmacologically unobjectionable anion and m is 0, 1, 2 or 3; p is 0 or 1;

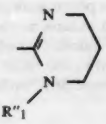
or

R′ is a radical of the formula $—(CH_2)_nC(O)Y$, wherein n=0, 1, 2, 3 or 4; and Y is a —OH-group or a pharmacologically unobjectionable salt thereof, or Y stands for a group of the formula $—NR_4R_5$, wherein R_4 and R_5 independently of each other stand for hydrogen or a branched or unbranched alkyl radical of 1 to 4 carbon atoms, or they are a radical of the formula $—(O)_r—R_6$, wherein R_6 stands for an alkyl radical with 1 to 6 carbon atoms; or they are a radical of the formula $—(CH_2)_q—R_7$, wherein q is 0, 1 or 2, and R_7 is a heterocyclic ring selected from the group of morpholinyl-, pyrrolidinyl-, piperidinyl, or piperazinyl, which may be bound through a carbon atom or through a nitrogen atom, wherein in the latter case q is not equal to 0, and which formally form an ammonium compound through juxtaposition of a compound of the formula $R_1'Z'$, wherein R_1' and Z′ have the same meanings as R_1 and Z, and r equals 0 or 1, or

R′ stands for a radical of the formula

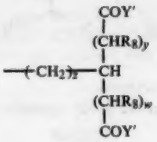


or it stands for a radical of the formula



wherein

R_1'' has the same meaning as R_1 or R′ stands for a radical of the formula



wherein

Y′ has the same meaning as Y, R_8 stands for hydrogen or an OH-group; v, w and z are 0, 1 or 2, or

R′ stands for a radical of the formula —C(O)—$(CHR'_8)_s$—C(O)—Y″, wherein s=1, 2 or 3, and R_8' and Y″ have the same meaning as R_8 and Y respectively, or R′ stands for a radical of the formula

wherein M is hydrogen or a physiologically unobjectionable cation.

4,335,120

ADMINISTRATION OF BIOLOGICALLY ACTIVE VITAMIN D_3 AND VITAMIN D_2 MATERIALS

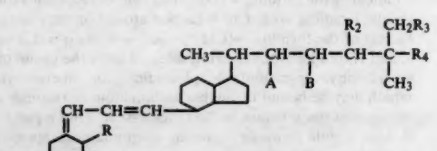
Michael F. Holick, Sudbury, Mass., and Milan R. Uskokovic, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 137,673, Apr. 4, 1980, abandoned, which is a division of Ser. No. 22,393, Mar. 21, 1979, Pat. No. 4,230,701. This application 1980, Ser. No. 203,291

Int. Cl.³ A61K *31/59, 31/56*

U.S. Cl. 424—236 **27 Claims**

1. A process of administering a therapeutic amount of a biologically active vitamin D material comprising providing to the skin of a subject a therapeutically effective amount of a biologically active vitamin D_2 or D_3 material of the formula:



wherein R is methylidene or methyl; R_2 is hydrogen, hydroxy or methyl; R_1, R_3 and R_4 are hydrogen, hydroxy or halogen; A and B are individually hydrogen or taken together form a carbon to carbon bond; with the proviso that at least one of R_1, R_2, R_3 or R_4 is hydroxy and with the further proviso that when A and B form a carbon to carbon bond, R_2 is methyl

and allowing the material to transport through the skin into the bloodstream.

4,335,121

ANDROSTANE CARBOTHIOATES

Gordon H. Phillipps, Wembley; Brian M. Bain, Chalfont St. Peter; Ian P. Steeples, Ruislip Manor, and Christopher Williamson, Cobham, all of England, assignors to Glaxo Group Limited, London, England

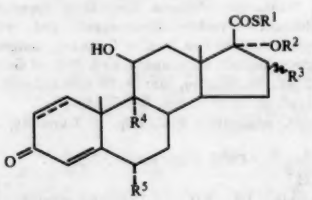
Filed 1981, Ser. No. 234,113

Claims priority, application United Kingdom, 1980, 8005174

Int. Cl.³ C07J *7/00*; A61K *31/56*

U.S. Cl. 424—241 **25 Claims**

1. Compounds of the formula



(I)

wherein R^1 represents a fluoro-, chloro- or bromo-methyl group or a 2′-fluoroethyl group, R^2 represents a group COR^6 where R^6 is a C_{1-3} alkyl group or OR^2 and R^3 together form a 16α,17α-isopropylidenedioxy group; R^3 represents a hydrogen atom, a methyl group (which may be in either the α- or β-configuration) or a methylene group; R^4 represents a hydrogen, chlorine or fluorine atom; R^5 represents a hydrogen or fluorine atom and the symbol represents a single or double bond.

4,335,122

DIHYDRO-DIBENZOXEPINES-THIEPINES AND -MORPHANTHRIDONES, COMPOSITIONS AND USE

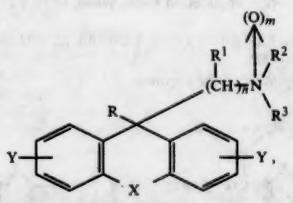
Arthur R. McFadden, East Brunswick, and Daniel E. Aultz, Middlesex, both of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.

Filed 1981, Ser. No. 225,122

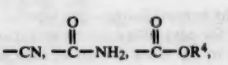
Int. Cl.³ A61K *31/335, 31/55*; C07D *223/20, 313/12*

U.S. Cl. 424—244 **87 Claims**

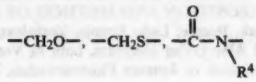
1. A compound depicted by the formula,



where R is selected from

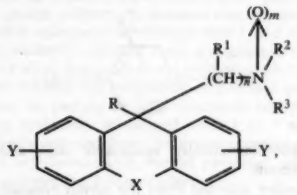


where R^4 is selected from H or alkyl; R^1 is hydrogen or alkyl; R^2 and R^3 are the same or different and are selected from H, and alkyl or R^2 and R^3 are fused to form the pyrrolidinyl, morpholino, piperidinyl and azepinyl group; Y is selected from H, halogen and alkoxy; X is selected from

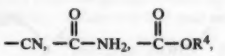


where R^4 is as defined above; m is an integer of 0 or 1 and n is an integer of 2 or 3, and the pharmaceutically acceptable salts thereof.

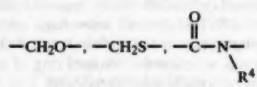
30. A diuretic composition which comprises a diuretically effective amount of a compound



where R is selected from



where R^4 is selected from H, and alkyl; R^1 is selected from H and alkyl; R^2 and R^3 are the same or different and are selected from H and alkyl or R^2 and R^3 are fused to form the pyrrolidinyl, morpholino, piperidinyl and azepinyl ring substituent; Y is selected from H, halogen and alkoxy; X is selected from



where R^4 is as defined above; m is an integer of 0 or 1; and n is an integer of 2 or 3, and the pharmaceutically acceptable salts thereof.

4,335,123

1-ACYL-8-(3-AMINO-2-HYDROXYPROPOXY)-1,2,3,4-TETRAHYDROQUINOLINES, COMPOSITIONS AND USE

Otto Gräwinger, Frankfurt am Main; Thomas Raabe, Rodenbach; Rudi Beyerle, Frankfurt am Main; Josef Scholtholt, Hanau-Mittelbuchen, and Rolf-Eberhard Nitz, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

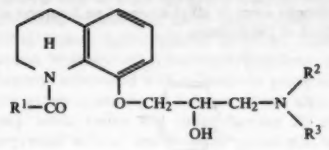
Filed 1980, Ser. No. 178,475

Claims priority, application Fed. Rep. of Germany, 1979, 2934609

Int. Cl.³ A61K *31/54, 31/47;* **C07D** *215/26, 417/12*

U.S. Cl. 424—246 **17 Claims**

1. A pharmacologically-active and physiologically-acceptable compound of the formula



(I)

wherein

R^1 is lower alkyl, heteroaryl (having 4 or 5 ring carbon atons and 1 ring hereto atom selected from the group consisting of nitrogen, oxygen and sulfur), phenyl or substituted phenyl (any substituent of which is, independently, a member selected from the group consisting of lower alkyl, lower alkoxy, halo and trifluoromethyl),

R^2 is —H, lower alkyl or, together with R^3 and the nitrogen atom to which both are bound, a 5-membered or 6-membered ring having at most one further ring hetero-atom grouping (selected from the group consisting of —O—, —S— and —NH—), and

R^3 is —H, lower alkyl or, together with R^2 and the nitrogen atom to which both are bound, a 5-membered or 6-membered ring having at most one further ring hetero-atom grouping (selected from the group consisting of —O—, —S— and —NH—),

or a physiologically-acceptable acid-addition salt thereof.

11. A pharmaceutical formulation useful for treating cardiac arrhythmia and/or hypertension and which has, per unit dose, an effective amount of a tetrahydroquinoline according to claim **1** or of a pharmaceutically-acceptable acid-addition salt thereof, in addition to pharmaceutically-acceptable excipient and/or additive.

4,335,124

1-ALKYL, 1-PHENYL-BUTENES

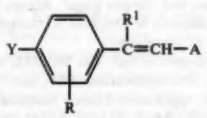
Eugene E. Galantay, Liestal, Switzerland, assignor to Sandoz, Inc., E. Hanover, N.J.

Division of Ser. No. 65,277, Aug. 9, 1979, Pat. No. 4,273,787, which is a continuation of Ser. No. 656,785, Feb. 10, 1976, abandoned, which is a continuation-in-part of Ser. No. 626,943, Oct. 29, 1975, abandoned, which is a continuation-in-part of Ser. No. 390,032, Aug. 20, 1973, abandoned. This application 1980, Ser. No. 196,474

Int. Cl.³ A61K *31/03;* **C07C** *25/24;* **A61K** *31/535*

U.S. Cl. 424—248.4 **8 Claims**

1. A compound of the formula

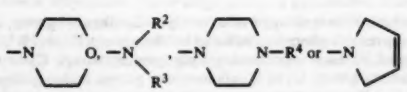


wherein

R is a hydrogen atom or halo having an atomic weight of from about 19 to 80;

R^1 is alkyl, having from 1 to 3 carbon atoms;

Y is halo having an atomic weight of from about 80 to 127, isobutyl, tert.-butyl, cyclohexyl, cyclohexenyl, a radical of the formula



wherein

each of R^2 and R^3 independently, is alkyl having 1 to 3

carbon atoms, or R^2 and R^3 are joined to form with the nitrogen atom a pyrrolidino or piperidino ring, and

R^4 is a hydrogen atom or alkyl having 1 to 3 carbon atoms; or a radical of the formula

wherein

X is a hydrogen atom, halo having an atomic weight of from about 19 to 80, or alkoxy, having from 1 to 4 carbon atoms; and

A is

wherein

Z is halo having an atomic weight of from about 35 to 80; or a pharmaceutically acceptable acid addition salt thereof.

6. A pharmaceutical composition suitable for use as antiinflammatory comprising a compound of claim **1** and a pharmaceutically acceptable carrier for said compound.

4,335,125

1-(1,3-DIOXOLAN-2-YLMETHYL)-1H-IMIDAZOLES

Jan Heeres, Vosselaar; Leo J. J. Backx, Arendonk, and Joseph H. Mostmans, Antwerp, all of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

Division of Ser. No. 853,728, Nov. 21, 1977, Pat. No. 4,144,346, which is a continuation-in-part of Ser. No. 764,263, Jan. 31, 1977, abandoned. This application 1979, Ser. No. 1,613

Int. Cl.³ A61K *405/14*

U.S. Cl. 424—250 **11 Claims**

9. A chemical compound selected from the group consisting of cis-1-acetyl-4-{4-[2-(2,4-dichlorophenyl)-2-(1H-imidazol-1-yl-methyl)-1,3-dioxolan-4-ylmethoxy]phenyl} piperazine and the pharmaceutically acceptable acid addition salts and stereochemically isomeric forms thereof.

4,335,126

1-[3-(3,4,5-TRIMETHOXYPHENOXY)-2-HYDROXY-PROPYL]-4-ARYL-PIPERAZINE-DERIVATIVES HAVING PHARMACEUTICAL ACTIVITY

Axel Kleemann, Hanau; Vladimir Jakovlev, Maintal; Klaus Thiemer, Hanau, and Jürgen Engel, Alzenau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

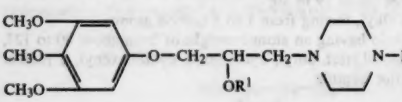
Continuation-in-part of Ser. No. 891,382, Mar. 29, 1978, abandoned. This application 1980, Ser. No. 193,482

Claims priority, application United Kingdom, 1977, 10100/77

Int. Cl.³ A61K *31/495;* **C07D** *295/08*

U.S. Cl. 424—250 **43 Claims**

1. A compound corresponding to the formula



I

in which R^1 is hydrogen atom or C_2 to C_6-alkanoyl group, and R^2 represents phenyl substituted by the groups R^3 and R^4, the R^3 and R^4 each representing hydrogen, hydroxyl, C_1 to C_6-alkanoxy group, C_2 to C_6-alkanoyloxy group, amino group or C_2–C_6-alkanoylamino group with proviso at least one of R_3 and R_4 is not hydrogen and their salts.

30. A method of imparting a neuroleptic or tranquilizing effect in a mammal comprising administering to the mammal an amount of a compound of claim **1** sufficient to cause said effect.

4,335,127

PIPERIDINYLALKYL QUINAZOLINE COMPOUNDS, COMPOSITION AND METHOD OF USE

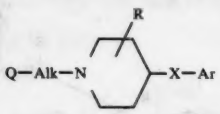
Jan Vandenberk, Beerse; Ludo Kennis, Vosselaar; Marcel Van der Aa, and Albert Van Heertum, both of Vosselaar, all of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

Continuation-in-part of Ser. No. 1,493, Jan. 8, 1979, abandoned. This application 1979, Ser. No. 84,272

Int. Cl.³ C07D *401/06;* **A61K** *31/445*

U.S. Cl. 424—251 **15 Claims**

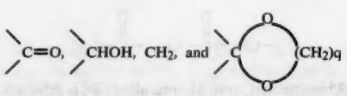
1. A chemical compound selected from the group consisting of a quinazoline compound having the formula



and the pharmaceutically acceptable acid addition salts thereof, wherein;

Ar is a number selected from the group consisting of aryl, thienyl, and pyridinyl radicals;

X is a member selected from the group consisting of



wherein said q is the integer 2 or 3;

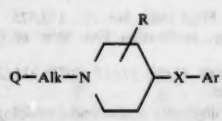
R is a member selected from the group consisting of hydrogen, hydroxy and lower alkyl;

Alk is an alkylene chain having from 1 to 4 carbon atoms; and

Q is a quinazolinyl radical, the 1-, 2-, 3- or 4-position of which is connected with the alkylene side chain, said quinazolinyl radical bearing in one or both of its 2- and 4-positions a oxo or thioxo group, wherein the benzene ring of said quinazolinyl radical is optionally substituted with 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl, nitro and cyano, and wherein the pyrimidino ring of said quinazolinyl radical may be partly or fully saturated, said pyrimidino ring being optionally substituted with 1 to 3 substituents independently selected from the group consisting of lower alkyl, aryl, aryl(lower alkyl), thienyl, pyridinyl, thienyl(loweralkyl), and pyridinyl (loweralkyl);

wherein said aryl as used in the definition of said Ar and of said Q is a member selected from the group consisting of phenyl substituted with from 1 to 2 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl and amino.

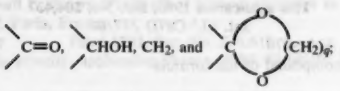
11. A method of treating congestion in warm-blooded animals which comprises the administration thereto of an effective anticongestive amount of a chemical compound selected from the group consisting of a quinazoline compound having the formula



and the pharmaceutically acceptable acid addition salts thereof, wherein:

Ar is a member selected from the group consisting of aryl, thienyl, and pyridinyl radicals;

X is a member selected from the group consisting of



wherein said q is the integer 2 or 3;

R is a member selected from the group consisting of hydrogen, hydroxy and lower alkyl;

Alk is an alkylene chain having from 1 to 4 carbon atoms; and

Q is a quinazolinyl radical, the 1-, 2-, 3- or 4-position of which is connected with the alkylene side chain, said quinazolinyl radical bearing in one or both of its 2- and 4-positions a oxo or thioxo group, wherein the benzene ring of said quinazolinyl radical is optionally substituted with 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl, nitro and cyano, and wherein the pyrimidino ring of said quinazolinyl radical may be partyly or fully saturated, said pyrimidino ring being optionally substituted with 1 to 3 substituents independently selected from the group consisting of lower alkyl, aryl, aryl(loweralkyl), thienyl, pyridinyl, thienyl (loweralkyl), and pyridinyl (lower alkyl);

wherein aryl as used in the definition of said Ar and of said Q is a member selected from the group consisting of penyl and phenyl substituted with from 1 to 2 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy, trifluoromethyl and amino.

4,335,128

PROCESS FOR THE TREATMENT OF PATIENTS SUFFERING FROM DREPANOCYTOSIS

Jean Blanchard, Toulouse, and Monique Verry, Saint-Cloud, both of France, assignors to Omnium Financier Aquitaine pour l'Hygiene et la Sante (Sanoli), Paris, France

Continuation of Ser. No. 917,374, Jun. 20, 1978, Pat. No. 4,210,649. This application 1980, Ser. No. 150,890

Claims priority, application France, 1977, 77 19161

The portion of the term of this patent subsequent to 1997, has been disclaimed.

Int. Cl.³ A61K *31/435*

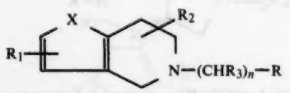
U.S. Cl. 424—256 **10 Claims**

1. A method for the treatment of a patient suffering from drepanocytic anemia and showing the symptoms of drepanocytosis caused by the presence of S-hemoglobin in drepanocytes, which comprises:

administering to said patient a compound of formula I below, thus inducing reversal of the drepanocytosis by causing the drepanocytes to lose their sickle shape and revert to their disk-like shape,

increasing the hemoglobin content and causing a remission of the symptoms of said patient;

said compound being administered in a daily dosage of from about 400 to about 1000 mg. as the active medicament, and having the formula:



(I)

in which X is oxygen or sulfur; R is selected from the group consisting of hydrogen, phenyl, phenyl substituted with at least one group selected from the group consisting of halogen, lower alkyl, lower alkoxy, nitro, amino, sulfonylamino, aryl, carboxyl, alkoxycarbonyl, cyano, hydroxymethyl and methylenedioxy; stryryl, naphthyl, thienyl, benzhydryl, each of the latter being optionally substituted with at least one group selected from the group consisting of halogen, lower alkyl, lower alkoxy, aryl, nitro, amino, sulfonylamino, carboxyl, alkoxycarbonyl, cyano, hydroxymethyl and methylenedioxy; benzoyl, and benzoyl substituted with at least one group selected from the group consisting of halogen, lower alkyl, lower alkoxy, nitro, amino and sulfonylamino; R_1 and R_2 each represent at least one atom or group selected from the group consisting of hydrogen, halogen, hydroxy, lower alkyl, lower alkoxy, nitro and amino; R_3 is selected from the group consisting of hydrogen, halogen, hydroxy, lower alkyl, lower alkoxy, nitro and amino; and n is zero or an integer from 1 to 15; and R_3 may have a different meaning in each CHR_3 group when n is greater than 1; or a pharmaceutically acceptable acid addition salt or quaternary ammonium derivative of said compound.

4,335,129

THIAZOLO[3,2-6]ISOQUINOLINES, COMPOSITIONS AND USE THEREOF

Kazuo Kubo, Urawa; Noriki Ito, Iwatsuki; Isao Souzu, Urawa; Yasuo Isomura, Yokohama, and Hiroshige Homma, Omiyu, all of Japan, assignors to Yamanouchi Pharmaceutical Co. Ltd., Tokyo, Japan

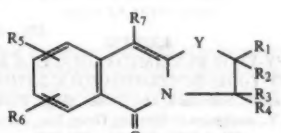
Continuation of Ser. No. 29,000, Apr. 11, 1979, abandoned, which is a division of Ser. No. 861,980, Dec. 19, 1977, Pat. No. 4,163,844. This application 1981, Ser. No. 229,183

Claims priority, application Japan, 1976, 51-157867; 1977, 52-121666

Int. Cl.³ A61K *31/47*; C07D *513/04*

U.S. Cl. 424—258 **17 Claims**

1. Nitrogen-containing heterocyclic compounds represented by the formula



wherein Y represents

wherein m is 1 or 2; R_1 and R_4, which may be the same or different, each represents a hydrogen atom, a lower alkyl group, or a lower alkenyl group; R_2 and R_3, which may be the same or different, each represents a hydrogen atom, a hydroxyl group, a lower alkanoyloxy group, a lower alkyl group or a lower alkenyl group; said R_2 and R_3 may further form together a double bond; R_5 and R_6, which may be the same or different, each represents a hydrogen atom, a halogen atom, a hydroxyl group, a nitro group, an amino group, a lower alkoxy group, a mono or di lower alkylamino group, or a lower alkyl group; said R_5 and R_6 may further form together a lower alkylenedioxy group; and R_7 represents a hydrogen atom, a halogen atom, a lower alkanoyl group, a phenyl group, a phenyl lower alkyl group, a lower alkyl group, a hydroxy lower alkyl group, a di-lower alkylamino lower alkyl group, a pyrrolidino lower alkyl group, a piperidino lower alkyl group, a morpholine lower alkyl group, or a 4-lower alkylpiperazino lower alkyl group; and the pharmacologically acceptable non-toxic salts thereof.

14. An analgesic antiinflammatory composition which contains a therapeutically effective amount of the compound of claim 1 and a pharmacologically acceptable diluent.

4,335,130

ANTIFUNGAL COMPOSITION

Thomas J. Schwan, and Joseph E. Gray, both of Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.

Filed 1981, Ser. No. 263,071
Int. Cl.[3] A01N *43/42*
U.S. Cl. 424—258 1 Claim

1. An antifungal mixture of pyrido[3,4-g]isoquinoline (A) and 3,8-phenanthroline (B) in which the A:B ratio is 37:63.

4,335,131

AMRINONE-N-GLUCURONIDE, SALTS AND CARDIOTONIC USE THEREOF

James F. Baker, East Greenbush, and Bernard W. Chalecki, Jr., Sand Lake, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed 1980, Ser. No. 209,393
Int. Cl.[3] A61K *31/44;* C07D *405/14*
U.S. Cl. 424—263 5 Claims

2. A cardiotonic composition for increasing cardiac contractility, said composition comprising a pharmaceutically-acceptable inert carrier and, as the active component thereof, a cardiotonically-effective amount of amrinone-N-glucuronide or pharmaceutically-acceptable acid-addition or cationic salt thereof.

4. The method for increasing cardiac contractility in a patient requiring such treatment which comprises administering orally or parenterally in a solid or liquid dosage form to such patient a cardiotonically-effective amount of amrinone-N-glucuronide or pharmaceutically-acceptable acid-addition or cationic salt thereof.

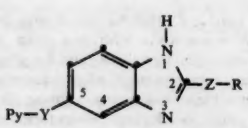
4,335,132

5-(PY-Y)-1H-BENZIMIDAZOL-2-OLS AND 5-(PY-Y-)-1H-BENZIMIDAZOLE-2-THIOLS

George Y. Lesher, Schodack, and Baldev Singh, East Greenbush, both of N.Y., assignors to Sterling Drug, Inc., New York, N.Y.

Filed 1980, Ser. No. 220,977
Int. Cl.[3] A61K *31/46;* C07D *487/02*
U.S. Cl. 424—263 12 Claims

1. 5-(Py-Y)-1H-benzimidazol-2-ol or 5-(Py-Y)-1H-benzimidazole-2-thiol or lower-alkyl ether or thioether thereof having the formula



where Z is O or S, Y is a direct linkage or lower-alkylene having one or two carbon atoms, R is hydrogen or lower-alkyl, and Py is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents or 1-oxide thereof, or pharmaceutically-acceptable acid-addition salt thereof.

9. A cardiotonic composition for increasing cardiac contractility, said composition comprising a pharmaceutically-acceptable inert carrier and, as the active component thereof, a cardiotonically-effective amount of 5-(Py-Y)-1H-benzimidazol-2-ol, 5-(Py-Y)-1H-benzimidazole-2-thiol or lower-alkyl ether or thioether thereof or pharmaceutically-acceptable acid-addition salt thereof, where Z is O or S, Y is a direct linkage or lower-alkylene having one or two carbon atoms, R is hydrogen or lower-alkyl, and Py is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents or 1-oxide thereof.

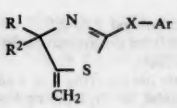
4,335,133

ARYLAMINO-4,4-DIALKYL-5-METHYLENE-1,3-THIAZOLINES

Edward I. Aoyagi, Petaluma, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 115,654, Jan. 28, 1980, Pat. No. 4,271,306.
This application 1980, Ser. No. 204,437
Int. Cl.[3] C07D *277/08*
U.S. Cl. 424—270 7 Claims

1. A compound of the formula



(I)

wherein R^1 and R^2 are independently alkyl of 1 to 4 carbon atoms or R^1 and R^2 are joined to form cycloalkyl of 5 to 8 carbon atoms;

X is

wherein R^3 is alkyl of 1 to 6 carbon atoms, alkenyl or alkynyl of 2 to 4 carbon atoms or cycloalkyl of 5 to 6 carbon atoms;

Ar is an aromatic group of 6 to 12 carbon atoms, optionally substituted with 1 to 5 halo groups, two nitro groups, or 1 to 5 haloalkyl groups containing 1 to 3 carbon atoms and 1 to 7 halogen atoms.

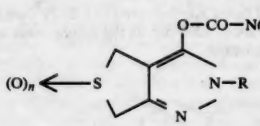
4,335,134

PESTICIDALLY ACTIVE N,N-DIMETHYL-CARBAMIC ACID O-(4,6-DIHYDRO-2H-THIENO[3,4-C]PYRAZOL-3-YL) ESTERS AND 5-OXIDES AND 5,5-DIOXIDES THEREOF

Fritz Maurer, Wuppertal; Ingeborg Hammann, Cologne, and Bernhard Homeyer, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed 1981, Ser. No. 225,548
Claims priority, application Fed. Rep. of Germany, 1980, 3003019
Int. Cl.[3] A01N *43/56;* C07D *495/04*
U.S. Cl. 424—273 P 8 Claims

1. An N,N-dimethyl-carbamic acid O-(4,6-dihydro-2H-thieno[3,4-c]pyrazol-3-yl) ester or 5-oxide or 5,5-dioxide thereof of the formula



in which

R is C_{1-5}-alkyl optionally substituted by cyano, or C_{3-6}-cycloalkyl, and

n is 0, 1 or 2.

7. A method of combating insects and nematodes which comprises applying to the pests, or to a habitat thereof, an insecticidally or nematocidally effective amount of a compound according to claim 1.

4,335,135

5 AMINO-3,4,5,6 TETRAHYDRO-1H-[-6-]CYCLOHEPT(c,d]INDOLOLS AND A METHOD FOR THEIR USE AS HYPOTENSIVES

Lucien Nédelec, Le Raincy; Daniel Frechet, Paris; Claude Dumont, Nogent sur Marne; Guy Plassard, Savigny sur Orge, and Neil L. Brown, Paris, all of France, assignors to Roussel Uclaf, Paris, France

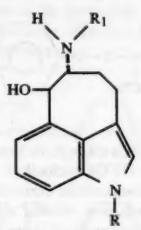
Filed 1981, Ser. No. 236,610

Claims priority, application France, 1980, 80 04198; 1980, 80 24406

Int. Cl.³ A61K *31/40;* **C07D** *209/80*

U.S. Cl. 424—274 **12 Claims**

1. A compound selected from the group consisting of trans cyclohept[c,d] indolols of the formula



I

wherein R is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms and optionally substituted aralkyl of 7 to 12 carbon atoms and R_1 is selected from the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms, cycloalkylalkyl of 4 to 7 carbon atoms and optionally substituted aralkyl of 7 to 12 carbon atoms substituted with at least one member selected from the group consisting of bromine, chlorine, methyl, ethyl, methoxy, trifluoromethyl, and methylthio, and their non-toxic, pharmaceutically acceptable acid addition salts.

9. A method of inducing hypotensive activity in warm-blooded animals comprising administering to warm-blooded animals an hypotensively effective amount of at least one compound of claim **1**.

4,335,136

ANTI-INFLAMMATORY 4,5-DIARYL-α-(POLYFLUOROALKYL)-1H-PYRROLE-2-METHANAMINES

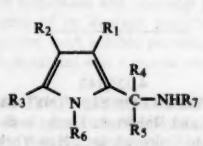
Saul C. Cherkofsky, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 141,664, Apr. 18, 1980, abandoned. This application 1981, Ser. No. 237,638

Int. Cl.³ A61K *31/40, 31/44;* **C07D** *207/335, 401/04*

U.S. Cl. 424—274 **32 Claims**

1. A compound of the formula

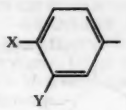


(I)

wherein

R_1 = H or C_1–C_2 alkyl;

R_2 and R_3 independently = 3-pyridyl or



where

X = H, F, Cl, Br, C_1–C_2 alkyl, C_1–C_2 alkoxy, di(C_1–C_2 alkyl-)amino or $CH_3S(O)_n$— where n = 0, 1 or 2; and

Y = H, F or Cl; with the proviso that when Y is F or Cl, then X is F or Cl;

R_4 and R_5 independently = H, CF_3, CF_2H, CF_2Cl, $CFCl_2$ or CF_2CF_3, with the proviso that no more than one of R_4 and R_5 can be H; and the further proviso that no more than one of R_4 and R_5 can be CF_2CF_3;

R_6 and R_7 independently = H, C_1–C_6 alkyl, benzyl or benzyl substituted with up to two atoms selected from the group consisting of F, Cl, Br, NO_2, and CF_3; with the proviso that when R_4 or R_5 is H, then R_7 must be H also; or

a pharmaceutically suitable acid addition salt thereof.

11. A pharmaceutical composition consisting essentially of a suitable pharmaceutical carrier and an effective antiinflammatory amount of a compound of claim **1**.

4,335,137

HALOETHENYLTHIENYLETHANONES FOR SYSTEMIC NEMATODE CONTROL

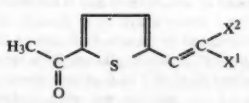
Donald R. James, Lockport, N.Y., assignor to FMC Corporation, Philadelphia, Pa.

Filed 1980, Ser. No. 130,937

Int. Cl.³ A01N *43/02*

U.S. Cl. 424—275 **6 Claims**

1. A method for systemic control of nematodes which comprises applying to the above-ground portions of an agricultural plant a nematicidally effective amount of a compound of the formula



in which X^1 and X^2 are each halogen selected from bromine, chlorine, and fluorine.

4,335,138

NOVEL CARBAMATES, THEIR PREPARATION, AND PHARMACEUTICAL FORMULATIONS CONTAINING THESE COMPOUNDS

Walter-Wielant Wiersdorff, Mutterstadt; Karl-Heinz Geiss, Beindersheim; Harald Weifenbach, Ludwigshafen; Wolfgang Worstmann, Gruenstadt; Dieter Lenke, Ludwigshafen, and Rolf Kretzschmar, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

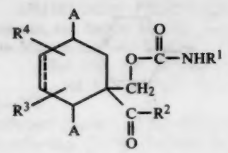
Filed 1980, Ser. No. 186,841

Claims priority, application Fed. Rep. of Germany, 1979, 2939660

Int. Cl.³ C07C *125/065, 125/04;* **C07D** *339/08, 339/06, 333/36, 307/66;* **A01N** *47/12, 47/20*

U.S. Cl. 424—275 **15 Claims**

1. A compound of the formula I



(I)

where the broken line is a double bond which may or may not be hydrogenated and the radicals A are each hydrogen, or the two radicals A together are a bridge, joining the two carbon atoms, of the formula $-(CH_2)_m-$, where m is an integer from 1 to 3, and which may or may not be substituted by 1, 2 or 3 lower alkyl, or a bridge of the formula

where n is an integer from 2 to 4, and R^1 is hydrogen, or is a saturated straight-chain or branched alkyl radical of 1 to 12 carbon atoms, which is unsubstituted, or is monosubstituted, disubstituted or trisubstituted by halogen, lower alkoxy or lower alkylthio, or is monosubstituted by cyano or by cycloalkyl of 3 to 6 carbon atoms in the ring, which ring is unsubstituted or substituted by 1, 2 or 3 lower alkyl and may, in the case of a 5-membered or 6-membered ring, have 1 or 2 carbon atoms replaced by oxygen or sulfur, or by bicycloalkyl of 5 to 8 carbon atoms in the bicyclic system, which is unsubstituted or substituted by 1, 2 or 3 lower alkyl, or is monosubstituted or disubstituted by phenyl, furyl or thienyl, which are unsubstituted or substituted by halogen, lower alkyl or lower alkoxy, or is alkenyl or alkynyl of 2 to 12 carbon atoms, alkenyl being unsubstituted or substituted by 1, 2 or 3 chlorine atoms, or is cycloalkyl of 3 to 7 carbon atoms in the ring, which ring is unsubstituted or substituted by 1, 2, 3 or 4 lower alkyl or by phenyl and may, in the case of a 5-membered or 6-membered ring, have 1 or 2 carbon atoms replaced by oxygen or sulfur, or is bicycloalkyl of 5 to 8 carbon atoms in the bicyclic system, which is saturated or unsaturated and is unsubstituted or substituted by 1, 2 or 3 lower alkyl, or is phenyl, furyl or thienyl, which is unsubstituted or monosubstituted or disubstituted by halogen, lower alkyl or lower alkoxy, R^2 is saturated straight-chain or branched alkyl of 1 to 6 carbon atoms and R^3 and R^4 independently of one another are each hydrogen or lower alkyl.

13. A hypnotic or sedative composition containing a hypnotic or sedative effective amount of a compound of the formula I as claimed in claim **1**, as the active compound, together with conventional carriers and diluents.

4,335,139

PHARMACEUTICAL FORMULATIONS CONTAINING PROSTACYCLIN COMPOUNDS

Ian S. Watts, Sidcup, and Peter H. Marsden, Dartford, both of England, assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Continuation of Ser. No. 39,645, May 16, 1979, abandoned. This application 1980, Ser. No. 182,054

Claims priority, application United Kingdom, 1978, 20175/78

Int. Cl.[3] **A61K** *31/34*

U.S. Cl. 424—285 **34 Claims**

1. A pharmaceutical formulation comprising an active compound selected from prostacyclin, 15-methylprostacyclin, 16, 16-dimethylprostacyclin or a pharmaceutically acceptable salt of any one of these in association with a pharmaceutically acceptable buffer having a pH of at least 9 and based on a pharmaceutically acceptable amino acid as a buffering acid in the buffer and, optionally, a further pharmaceutically acceptable carrier.

4,335,140

INSECTICIDAL TRIFLUOROETHANIMIDOTHIOATE DISULFIDES

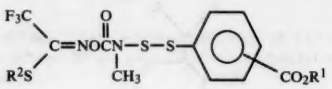
Marcus P. Moon, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 232,565

Int. Cl.[3] **A01N** *37/06;* **C07C** *119/20*

U.S. Cl. 424—298 **37 Claims**

1. A compound of the formula:



wherein

R^2 is C_1–C_4 alkyl, C_3–C_4 alkenyl, or benzyl;

R_1 is C_1–C_{20} alkyl or C_5–C_8 cycloalkyl.

14. An insecticidal composition consisting essentially of a surfactant, diluent or mixtures thereof and an insecticidally effective amount of a compound of claim **1**.

4,335,141

2-SUBSTITUTED-AMINOPROPENE-AND PROPANENITRILE ANTIMICROBIAL AND ANTI-INFLAMMATORY AGENTS

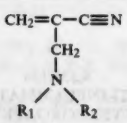
Nathaniel Grier, Englewood; Richard A. Dybas, Somerville, and Bruce E. Witzel, Rahway, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed 1979, Ser. No. 106,616

Int. Cl.[3] **C07C** *121/45, 121/48, 121/43;* **A61K** *31/275*

U.S. Cl. 424—304 **10 Claims**

5. A method of treating sympotms of pain, fever, and inflammation, comprising administering to a patient in need of such treatment an effective amount of a compound of the formula:



wherein

R_1 is straight or branched C_8–C_{20}alkyl;

R_2 is selected from the group consisting of hydrogen; straight or branched C_1–C_{20} alkyl; hydroxy C_{1-4} alkyl; C_{1-4}alkoxy C_{1-4} alkyl; halo C_{1-4} alkyl; and C_{3-8} cycloalkyl;

or a pharmaceutically acceptable acid addition salt thereof.

4,335,142

ARYL (1-ARYLSULFONYL) VINYL SULFONES

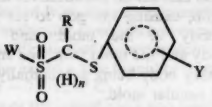
Douglas I. Relyea, and Robert A. Davis, both of New Haven, Conn., assignors to Uniroyal, Inc., New York, N.Y.

Filed 1979, Ser. No. 74,271

Int. Cl.[3] **C07C** *147/06;* **A01N** *31/08*

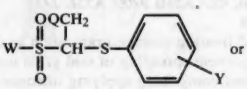
U.S. Cl. 424—337 **21 Claims**

1. A microbicide having the general formula



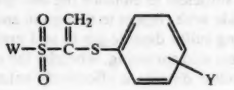
wherein n is 0 or 1; R is a halomethyl or methylene radical; W is cyclohexyl, or meta or para substituted phenyl wherein the substituents are selected from the group consisting of C_1–C_4 alkyl, halogen and nitro; Y is hydrogen, halogen, nitro or C_1–C_4 alkyl; provided that when R is halomethyl, n is 1, and when R is methylene, n is 0.

18. A method for controlling microbes which comprises applying to a plant to be protected against attack by such microbes, a microbicidally effective amount of a compound selected from the formula



(a)

or



(b)

wherein Q is halogen, W is cyclohexyl, phenyl, or meta or para substituted phenyl wherein the substituents are C_1–C_4 alkyl, halogen or nitro, Y is hydrogen, halogen, nitro or C_1–C_4 alkyl.

4,335,143

DRIED ALBEDO CLOUDING AGENT AND PROCESS THEREFOR

Claire Wiener, Spring Valley, N.Y., and Gerhard J. Haas, Woodcliff Lake, N.J., assignors to General Foods Corporation, White Plains, N.Y.

Filed 1980, Ser. No. 192,262
Int. Cl.³ A23L *1/212, 2/00*
U.S. Cl. 426—50 **10 Claims**

1. A process for producing a dried albedo clouding agent from albedo-containing material which comprises:

(a) comminuting the albedo-containing material and forming a slurry;

(b) separating said slurry to obtain a liquid filtrate which contains fine suspended and colloidal particles of albedo clouding agent of an average particle size less than 3 microns together with soluble pectinaceous material and soluble carbohydrates and a coarse residue which is discarded;

(c) isolating the fine suspended and colloidal particles of albedo clouding agent from the liquid phase of the filtrate;

(d) washing said isolated particles from step (c) with water, a water-miscible solvent or a combination thereof to remove unwanted flavors; and

(e) drying the washed particles to obtain the dried albedo clouding agent.

4,335,144

PREPARATION OF POROUS ACTIVE YEAST GRANULES

Franz-Josef Carduck, Haan; Dietrich Kloetzer, Dusseldorf, and Gerard Veldman, Brueggen, all of Fed. Rep. of Germany, assignors to Deutsche Hefewerke GmbH, Hamburg-Wandsbek, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 21,781, Mar. 19, 1979, abandoned. This application 1981, Ser. No. 226,146
Int. Cl.³ C12C *11/18, 11/32*
U.S. Cl. 426—62 **10 Claims**

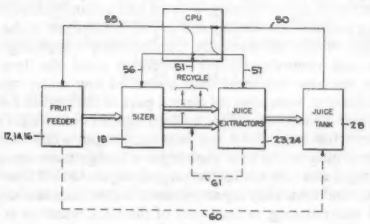
1. A process for the production of porous granules of compressed yeast which comprises the steps of introducing a moist yeast having a solids content of 30% to 40%, introducing from 0.2 to 2.0 times the volume of said yeast, of a gas, admixing said gas with said moist yeast to form a uniform mass, extruding said gas-yeast mass at a pressure of compression of from 1 to 10 atmospheres through orifices having a length to diameter ratio of approximately 1:1 to 4:1, allowing the escape of the gas from the interior of the extrudate to form pores communicating with the surface and recovering porous granules of compressed yeast.

4,335,145

METHOD FOR CONTROLLING THE FLOW OF FRUIT AND FRUIT JUICE THROUGH A JUICE EXTRACTION FACILITY

Robert C. Stanley, Lakeland, Fla., assignor to FMC Corporation, Chicago, Ill.

Filed 1980, Ser. No. 171,917
Int. Cl.³ G01N *33/14*
U.S. Cl. 426—231 **3 Claims**



1. A method for controlling the flow of fruit and fruit juice through a juice extraction facility, said juice extraction facility including a fruit storage location for storing the fruit in bulk, a sizer for separating the fruit into at least two size categories, said sizer being adjustable to vary the size limits of each category, a feeder for feeding the fruit from the fruit storage location to the sizer, a plurality of juice extractors, said extractors arranged in two or more groups with each group of extractors adapted to extract juice from fruit in one of said size categories, means for conveying the fruit from the sizer to the extractors according to size, means for recycling excess fruit from each group of extractors back to said storage location upstream of said group, and a juice storage location adapted to receive juice collected from all extractors, said method comprising the steps of:

measuring the amount of juice held at the juice storage location;

adjusting the number of extractors operating to maintain a preselected amount of juice at the juice storage location;

measuring the number of fruit recycled to said storage location from each group of extractors;

adjusting the size limits on the sizer so that the numbers of excess fruit recycled from each group of extractors are made substantially equal; and

varying the feed rate of the feeder so that a preselected number of excess fruit are recycled from the extractors, said preselected number chosen to be the smallest number

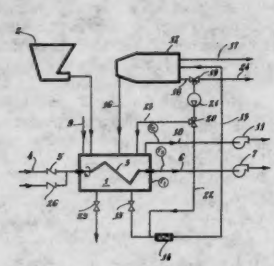
of fruit, whereby all operating extractors have fruit available at all times with a small excess of fruit.

4,335,146

PROCESSING FISH RAW MATERIAL

Per V. H. Bladh, Jarna, Sweden, assignor to Alfa-Laval, Inc., Poughkeepsie, N.Y.

Filed 1981, Ser. No. 230,702
Int. Cl.[3] A01K *43/00*
U.S. Cl. 426—231 13 Claims



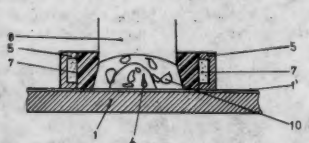
1. In a process for the recovery of meal and oil from raw fish, the steps comprise boiling a mass of the raw fish, separating and removing oil from the boiled fish mass by centrifuging in a centrifugal separator having a rotating feed screw and three separate outlets for a sludge phase, a heavier liquid phase and a lighter liquid phase, respectively, and then drying the sludge phase to fish meal, wherein the improvement comprises charging finely divided raw fish mass into a heat exchanger equipped for indirect heating, stirring and steam removal, then effecting a combined boiling and drying procedure in the heat exchanger while substantially continuously supplying heat thereto and removing steam therefrom until the heat exchanger contains fish meal with a desired low water content and oil content, removing oil during part of the period for said boiling and drying procedure by feeding said centrifugal separator with fish mass from the heat exchanger while continuously returning to the heat exchanger a sludge mass separated in said separator and while discharging separated oil from said separator and removing separated stick water from said separator and recirculating, at least part of the stick water to at least one of said heat exchanger and the fish mass removed from the heat exchanger for feeding into the separator.

4,335,147

METHOD FOR MAKING CONFECTIONS

Helmut Sollich, Albernberg 194, 4925 Kalletal-Talle, Fed. Rep. of Germany

Filed 1980, Ser. No. 129,672
Int. Cl.[3] A23G *3/00*
U.S. Cl. 426—295 7 Claims



1. A method of making confections of substantially uniform size, comprising the steps of depositing a gob of flowable confectionary substance onto a surface; surrounding the gob in spaced relationship with an annular mold, said mold surrounding said gob only around the periphery of said gob, said mold surrounding said gob with clearance therebetween; depositing at least one additive loosely on the gob; exerting pressure upon the gob to cause it to spread apart within the borders of the mold so that a gap is left between the spread gob and the mold, pressure being also exerted on the additives to press said additives into said gob; causing the gob to set so as to form a confectionary body in the mold; and separating the confectionary body and the mold from one another, the shape of the confectionary body being substantially independent of the shape of said annular mold.

4,335,148

METHODS OF PREVENTING GRAIN SPROUTING AFTER HARVEST THROUGH THE APPLICATION OF SULFUR DIOXIDE, NITROGEN AND AMMONIA GASES

Frederick D. Vidal, Englewood Cliffs, and Anantharman Jayaraman, Nutley, both of N.J., assignors to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 156,501, Jun. 4, 1980, Pat. No. 4,309,451, which is a division of Ser. No. 50,162, Jun. 20, 1979, abandoned, and a continuation-in-part of Ser. No. 38,739, May 14, 1979, abandoned. This application 1980, Ser. No. 176,708
Int. Cl.[3].A23B *9/00;* A23L *3/34*
U.S. Cl. 426—319 6 Claims

1. A method of treating storage grain, such as corn, wheat and sorghum to prevent sprouting of said grain under suitable moisture conditions comprising applying nitrogen gas to said grain in amounts sufficient to enhance the anti-sprouting activity of sulfur dioxide with respect to said grain and at about the same time applying sulfur dioxide gas to said grain in amounts effective to prevent said sprouting, whereby the anti-sprouting activity of said sulfur dioxide is effectively enhanced by said nitrogen gas.

4,335,149

DIRECT CONDENSATION OF FOOD VOLATILES ONTO A FOOD SUBSTRATE AT CRYOGENIC TEMPERATURES

Gordon K. Stipp, West Chester, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed 1980, Ser. No. 155,709
Int. Cl.[3] A23F *5/24*
U.S. Cl. 426—386 19 Claims

1. A method for aromatizing a food substrate, comprising the steps of:

placing a particulate solid food substrate in a vessel;

cooling the vessel with a cryogenic fluid;

mechanically fluidizing the food substrate by mixing at a tip speed of at least about 200 ft./min., to provide an absorbent bed thereof having a porosity of at least about 0.73; and

contacting the fluidized, cooled bed of food substrate at a temperature below about −100° F. with gaseous food volatiles at a rate of at least about 42 ft.^{3}/hr. per ft.^{3} of food substrate, whereby the food volatiles condense on and are adsorbed by the food substrate.

4,335,150

LOW TEMPERATURE FOOD DRYING PROCESS

Hideaki Hosaka, Fukuyama, and Setuya Kuri, Kamakura, both of Japan, assignors to Chlorine Engineers Corp. and Kun Chemical Engineers, both of Tokyo, Japan

Continuation of Ser. No. 50,131, Jun. 19, 1979, abandoned. This application 1980, Ser. No. 196,672
Int. Cl.[3] A23B *4/04, 7/02, 9/00;* F26B *5/00*
U.S. Cl. 426—465 8 Claims

1. A process for drying food at low temperatures by blowing a drying gas into the food, which comprises the steps of

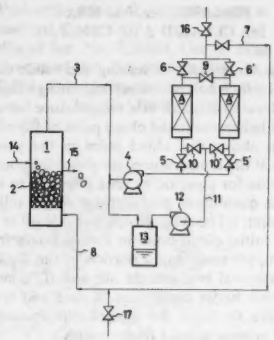
(a) feeding a food to a drying vessel,

(b) blowing a low humidity drying gas having a dew point of −75° to 0° C. into the drying vessel,

(c) contacting the food with the drying gas while maintaining the food at a temperature ranging from −30° to 60° C. and higher than the dew point of the drying gas, thereby drying the food and producing a water-containing gas,

(d) introducing and passing the water-containing gas into one of a pair of adsorbing beds packed with a dehumidifying agent selected from the group consisting of silica gel, alumina gel, molecular sieve and active carbon, thereby to effect dehumidification of the water-containing gas and to regenerate the gas to a low humidity drying gas having a dew point of −75° to 0° C.,

(e) switching over the introducing and passing of the water-containing gas to the other adsorbing bed before said one adsorbing bed becomes saturated with the adsorbed water,



(f) feeding a part of the regenerated drying gas as a purge gas into the water-adsorbed adsorbing bed while maintaining the water-adsorbed adsorbing bed at a pressure lower than the pressure of the water-containing gas, thereby to effect desorption,

(g) repeating the steps (d), (e) and (f), thereby to effect the regeneration of the water-containing gas to the low humidity drying gas stimultaneously with regeneration of the paired adsorbing beds,

(h) recycling the other part of the regenerated low humidity gas to the step (b), and

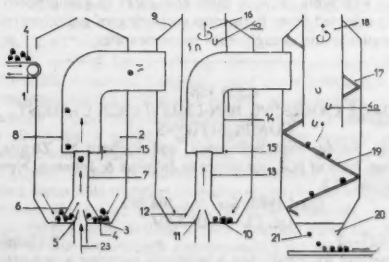
(i) recovering the dried food from the drying vessel.

4,335,151

METHOD FOR DECORTICATING SEEDS

Jacques-Jean Caubet, St. Etienne, France, assignor to Centre Stephanois de Recherches Mecaniques Hydro-Mecanique et Frottement, France

Continuation of Ser. No. 909,801, May 26, 1978, abandoned, which is a continuation-in-part of Ser. No. 696,462, Jun. 16, 1976, abandoned. This application 1980, Ser. No. 137,385
Claims priority, application France, 1975, 75 19495
Int. Cl.³ B02B *3/00*
U.S. Cl. 426—482 **7 Claims**



1. A method of decorticating seeds having a kernel enclosed within a seed hull comprising the steps of:

(a) rapidly accelerating the seeds by introducing the seeds into a turbulent stream of compressed air in a first flow passage;

(b) passing said seeds and said stream of air as a seed stream from said first flow passage into a smaller cross sectional second flow passage whereby the seed hulls are accelerated relative to the seed kernels and flowing said seed stream in said second passage until the seeds are traveling at substantially the same velocity as the air stream;

(c) passing said seeds and stream of air from said second flow passage into a substantially larger cross sectional third flow passage producing a great reduction in air stream pressure and velocity;

(d) adjusting the pressure and flow conditions in said air stream to produce a sufficiently great reduction in pressure and velocity when said air stream passes into said third flow passage to produce separation of the kernel and hull of a substantial proportion of said seeds in said third flow passage by deceleration and depressurization of said seeds such that the speed of the seed kernel increases relative to the speed of the seed hull such that said seeds are decorticated by the change in flow conditions; and

(e) repeatedly subjecting said seeds to said steps so as to produce a complete decortication of said seeds.

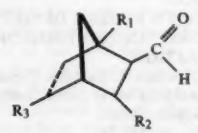
4,335,152

METHYL SUBSTITUTED NORBORNANE CARBOXALDEHYDES, ORGANOLEPTIC USES THEREOF AND PROCESS FOR PREPARING SAME

Philip T. Klemarczyk, Old Bridge; James M. Sanders, Eatontown; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank; Frederick L. Schmitt, Holmdel, and Edward J. Granda, Englishtown, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 152,187, May 22, 1980, Pat. No. 4,284,824.
This application 1980, Ser. No. 220,646
The portion of the term of this patent subsequent to 1999, has been disclaimed.
Int. Cl.³ A23L *2/26*
U.S. Cl. 426—538 **2 Claims**

1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising the step of adding to a foodstuff from 0.05 parts per million up to about 300 parts per million based on the foodstuff of at least one methyl substituted norbornane carboxaldehyde derivative defined according to the structure:



wherein the dashed line represents a carbon-carbon single bond or a carbon-carbon double bond; and wherein R_1, R_2 and R_3 are each selected from the group consisting of methyl and hydrogen with the proviso (i) when R_1 is hydrogen, R_2 is methyl and (ii) when R_1 is methyl, R_3 is hydrogen.

4,335,153

IMITATION COCOA POWDER AND METHOD OF PREPARING SAME

Steven M. Rikon, Strongsville, Ohio, and Frank del Valle, St. Ann, Ill., assignors to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 46,156, Jun. 5, 1979, abandoned. This application 1980, Ser. No. 156,618
Int. Cl.³ A23G *1/00*
U.S. Cl. 426—540 **15 Claims**

1. An imitation cocoa powder formulation having essentially the same physico-chemical and functional properties as natural cocoa powder, capable of replacement of natural cocoa pow-

der on a 100% pound-for-pound basis in applications traditionally using cocoa powder comprising based on the weight, dry basis, of the total formulation;

about 60–85% of a mixture of bland, finely ground, degerminated and/or defatted flours in proportion to provide a carbohydrate content of about 40–65%, a crude fiber content of 1–10%, a protein content of about 15–30%, and an ash content of about 2–7%;

about 1–25% fat;

the remainder being essentially water, flavor and colorant, the flavor and colorant being present in effective amounts to substantially duplicate the flavor and color of natural cocoa powder;

said formulation having a water solubility approximately the same as for natural cocoa powder.

4,335,154

METHOD FOR PREPARING A BAKED PRODUCT CONTAINING ALKALI METAL ALUMINUM PHOSPHATE

Robert E. Benjamin, and Thomas E. Edging, both of Nashville, Tenn., assignors to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 972,097, Dec. 21, 1978, Pat. No. 4,260,591. This application 1980, Ser. No. 176,882

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ A21D *8/00*

U.S. Cl. 426—551 **10 Claims**

1. In a method for preparing a a baked good which is leavened with the aid of a leavening acid and subsequently baked, the improvement which comprises using for at least a portion of said leavening acid an alkali metal aluminum phosphate prepared by a process which comprises:

(a) contacting a food grade phosphoric acid having a concentration of about 70.0 to about 90.0 weight percent H_3PO_4 with a sufficient amount of an alkali metal ion selected from the group consisting of sodium, potassium and mixtures thereof and aluminum ion to form an alkali metal aluminum phosphate in a slurry;

(b) contacting said alkali metal aluminum phosphate slurry with calcium sulfate subsequent to the initial formation of the alkali metal aluminum phosphate slurry; and

(c) drying the alkali metal aluminum phosphate.

4,335,155

COMPOSITION FOR AERATED FROZEN DESSERTS CONTAINING FRUIT PUREE AND METHOD OF PREPARATION

Jon R. Blake, Brooklyn Center; Richard K. Knutson, Corcoran, and Deon L. Strommer, Minneapolis, all of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed 1981, Ser. No. 241,293

Int. Cl.³ A23G *9/02*

U.S. Cl. 426—565 **14 Claims**

1. A non-dairy composition useful in the preparation of an aerated frozen dessert containing whole fruit puree which is spoonable at freezer temperatures and which is heat-shock stable, comprising:

A. from about 35% to 80% by weight of a cooked, fruit base consisting essentially of,

(1) from about 20% to 80% by weight of the base of a puree of whole fruit,

(2) from 20% to 80% by weight of the base of a nutritive carbohydrate sweetening agent, and wherein the fruit base has been cooked for about 30 to 60 minutes at from about 180° F. to 210° F.;

B. sufficient acid-stable whipping agent to enable aeration of the composition to a density ranging from about 0.2 to 0.95 g./cc.;

C. from about 0.05% to 0.5% by weight of an acid-stable polysaccharide gum;

D. from about 1% to 15% of an edible fatty triglyceride;

E. from about 1% to 15% by weight of a malto dextrin bodying agent; and

F. sufficient water to provide the composition with a moisture content of about 45% to 75%.

4,335,156

EDIBLE FAT PRODUCT

Lawrence Kogan, Stamford, and Turiddu A. Pelloso, Danbury, both of Conn., assignors to Nabisco Brands, Inc., New York, N.Y.

Filed 1980, Ser. No. 188,657

Int. Cl.³ A23D *3/02*; C11C *3/10*

U.S. Cl. 426—603 **19 Claims**

1. A process for rapidly increasing the solids content in a triglyceride oil which comprises: (a) subjecting a liquid triglyceride oil to interesterification at a temperature between a few degrees celsius below the initial cloud point of the oil and a few degrees celsius above that cloud point in the presence of a catalyst active at the temperatures involved; (b) continuing the interesterification for a period of time effective to increase by at least 1% the quantity of triglycerides which solidify at the initial cloud point; (c) cooling the triglyceride oil to a temperature below its initial cloud point to form a liquid fraction and a solid fraction; (d) removing a portion of the liquid fraction, (e) adding additional triglyceride oil; and (f) continuing the interesterification under conditions of time and temperature-cycling effective to direct the interesterification toward the production of increased solid triglycerides.

4,335,157

FLUID SHORTENING

R. Douglas Varvil, Olmsted Falls, Ohio, assignor to SCM Corporation, New York, N.Y.

Filed 1980, Ser. No. 175,432

Int. Cl.³ A21D *2/16*; A23D *5/02*

U.S. Cl. 426—606 **6 Claims**

1. A stabilized fluid shortening suitable for dough conditioning havng beta-fat crystals dispersed in liquid vegetable oil, for use in combination with ingredients of a yeast-raised product, comprising

about 4 to about 10 weight parts of a soft or hard mono- and diglyceride derived from vegetable oil;

about 2 to about 8 weight parts of fatty acid esters of polyglycerol

about 2 to about 8 weight parts of a solid beta-phase fine crystalline food emulsifier component; and

about 40 to about 100 weight parts of liquid vegetable oil, wherein said soft or hard mono- and diglycerides, said fatty acid esters of polyglycerol; said solid beta-phase crystalline food emulsifier component, and said liquid vegetable oil are dispersed by heating to form a liquified molten mixture followed by quick chilling to about 75° to 105° F. and fluidization to form beta-fat crystals and a stabilized substantially uniform dispersion within said liquid vegetable oil; said fatty acid ester of polyglycerol being selected from the group consisting of octaglycerol monooleate and octaglycerol monostearate.

4,335,158

BANDAGE CARRYING ION-LEACHABLE CEMENT COMPOSITIONS

Charles H. Beede, East Brunswick, and Richard N. Zirnite, Somerset, both of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.

Filed 1980, Ser. No. 204,983

Int. Cl.³ A61F *5/04*

U.S. Cl. 427—2 **9 Claims**

1. A method for producing a substrate carrying a cementitious composition comprising:

dispersing a mixture comprising an ion-leachable inorganic component and a poly(carboxylic acid) in a liquid to form

a coating mixture, said liquid comprising a non-aqueous, non-reactive liquid in which said poly(carboxylic acid) is substantially soluble; said liquid being selected from the group consisting of methanol, dioxane, tetrahydrofuran, 2-ethoxyethanol, 2-methoxyethanol, and mixtures thereof; and

applying said coating mixture to said substrate.

4,335,159

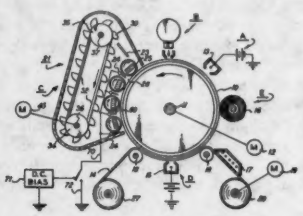
METHOD FOR DEVELOPING LATENT ELECTROSTATIC IMAGES

Delmer G. Parker, Irondequoit, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 728,803, Oct. 1, 1976, abandoned, which is a division of Ser. No. 615,658, Sep. 22, 1975, Pat. No. 4,050,413. This application 1979, Ser. No. 94,530

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—14.1 **3 Claims**



1. A method for improving a magnetic brush development system for developing latent electrostatic images carried by an imaging surface of an electrostatographic processor; said development system including a sump for storing a supply of developer having toner and carrier components, a plurality of magnetic brush rollers located in a development zone adjacent the imaging surface for depositing developer on the imaging surface and means for circulating said developer along a predetermined path running from said sump, through the development zone, and back to said sump, the improved method including the steps of:

placing a member in the region between and spaced from the rollers where developer is transferred from one roller to the next, and

oscillating said member in order to translate developer laterally to maintain the homogeneity thereof.

4,335,160

CHEMICAL PROCESS

Michael P. Neary, 409 E. Coronado, #2, Santa Fe, N. Mex. 87501, and Thomas A. Wilson, 14 Bayview Ct., Manhasset, N.Y. 11030

Continuation-in-part of Ser. No. 962,770, Nov. 21, 1978, abandoned. This application 1980, Ser. No. 213,039

Int. Cl.³ B05D *3/06;* **C23C** *11/00, 13/00*

U.S. Cl. 427—38 **18 Claims**

1. A method for producing ultra-pure coatings of metal, non-metal, organics, inorganics and other substances, which comprises passing a flow of a reagent gas of helium, or argon, through two annular electrodes across which a voltage of 200 to 300 volts is applied and bringing said reagent gas into contact with a sample gas selected from the group of $W(CO)_6$, $Ni(CO)_6$, silanes, perfluorobutane, whereby the reagent gas being metastable transfers its excess energy to the sample gas to produce the metal, non-metal, or other molecule in neutral high energy state, setting a laser pumped pulse tunable dye laser to the wavelength corresponding to the exact energy necessary to cause ionization of the sample gas given the energy of its high neutral high energy state, said foregoing procedure taking place in a container cavity such that an electric or magnetic field is applied so as to couple a uniform film of the particular ions involved to the site of their deposition whereby at least one layer of the selected product substance is deposited in controlled thickness on a selected target substrate, the deposit amount being controlled by controlling the rate at which the sample gas ions are formed.

4,335,161

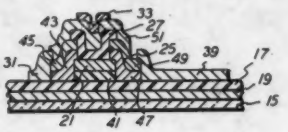
THIN FILM TRANSISTORS, THIN FILM TRANSISTOR ARRAYS, AND A PROCESS FOR PREPARING THE SAME

Fang C. Luo, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed 1980, Ser. No. 203,218

Int. Cl.³ H01L *21/285*

U.S. Cl. 427—86 **6 Claims**



1. In a process for the preparation of a thin film transistor array including a plurality of thin film transistors, each transistor having a source electrode, a drain electrode and an insulated gate electrode positioned with respect to a semiconductor pad, said plurality of thin film transistors arranged in rows and columns, each source electrode of each transistor in any given row being connected to a common bus conductor, each gate of each transistor in any given column being connected to a common bus conductor to form a matrix whereby any given transistor of the array can be addressed, each transistor having at least the interface of the semiconductor pad with the next adjacent subsequently deposited layers formed in a single vacuum pump-down, the improvement which comprises forming the semiconductor pads by depositing a semiconductor material through a mask having openings therein commensurate to the size, shape and relative position of the semiconductive pads to be deposited, moving the mask in a first direction parallel to the longest dimension of the openings therein a distance of from about ⅛ to about ¾ of the longest dimension of the openings, depositing a conductive material through the openings in the mask to form a first electrical contact to each semiconductive pad, moving the mask in a direction 180° with respect to said first direction a distance of about twice the distance of the initial movement and depositing a conductive material through the openings in the mask to form a second electrical contact to each semiconductive pad, depositing an insulating layer over at least the areas occupied by the semiconductor pads, removing the prepared structure from vacuum, applying discrete areas of conductive material over the insulating layer to form the gate electrode of each transistor of the array and forming the source bus conductors and the gate bus conductors.

4,335,162

METHOD OF PRODUCING A FAULT TRANSPARENT BUBBLE MEMORY BY DIFFUSING MANGANESE IN PRESELECTED PERMALLOY ELEMENTS

James A. Cunningham, Saratoga, and Anthony M. Tuxford, San Francisco, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed 1980, Ser. No. 143,624

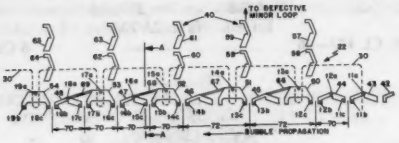
Int. Cl.³ G11C *19/08;* **B05D** *5/12*

U.S. Cl. 427—130 **1 Claim**

1. A method of fabricating a magnetic bubble memory comprising the steps of:

forming a layer of garnet;

depositing a first insulating layer over the garnet layer;
forming a pattern of control conductors over the first insulating layer;
depositing a second insulating layer over the pattern of control conductors and over the first insulating layer;
forming a pattern of elements, each made of a layer of permalloy and a layer of manganese, over the second insulating layer to define a plurality of paths for propagating magnetic bubble domains under the influence of a Z bias magnetic field and a rotating XY magnetic drive field, the elements being configured and positioned so that the



magnetic bubble domains can be selectively routed by creating barriers over which the magnetic domains will not propagate; and
heating preselected ones of the elements to a predetermined temperature to diffuse the manganese in the permalloy sufficiently to quench the magnetization in the permalloy to thereby create the barriers, the relative thicknesses of the permalloy and manganese layers in each of the elements being such that the predetermined temperature is approximately 75% to 90% of the melting point of the permalloy.

4,335,163

HIGH GLOSS WATER-BASE COATING COMPOSITION

Jack Y. Wong, 10173 Miner Pl., Cupertino, Calif. 95014

Filed 1980, Ser. No. 190,604
Int. Cl.³ B05D *5/00*
U.S. Cl. 427—256 **18 Claims**

1. A water-base coating composition comprising:
(a) 25% to 75% water by volume;
(b) 20 to 75% by weight of an alkyd of vinyltoluene copolymer containing a medium weight safflower oil fatty acid, isophthalic acid polyester and trimellitic acid and an alkyd of isophthalic acid medium weight soy bean oil compound in an approximately 1:1 ratio;
(c) 1 to 10% by weight of a basic solution having a pH of 7.8 to 10.5;
(d) 1.0 to 10% by weight co-solvent;
(e) 0.1 and 1.5% by weight water soluble drying agents;
(f) 0.1 to 1.0% by weight defoamer; and
(g) pigments.

9. An improved method of commercial sign painting wherein the improvement lies in the application of a water-base coating composition comprising:
(a) 25% to 75% water by volume;
(b) 20 to 75% by weight of an alkyd of vinyltoluene copolymer containing a medium weight safflower oil fatty acid, isophthalic acid polyester and trimellitic acid and an alkyd of isophthalic acid medium weight soy bean oil compound in an approximately 1:1 ratio;
(c) 1 to 10% by weight of a basic solution having a pH of 7.8 to 10.5;
(d) 1.0 to 10% by weight co-solvent;
(e) 0.1 and 1.5% by weight water soluble drying agents;
(f) 0.1 to 1.0% by weight defoamer; and
(g) pigments.

4,335,164

CONDITIONING OF POLYAMIDES FOR ELECTROLESS PLATING

David A. Dillard, Diamond Bar; Eileen Maguire, Arcadia, and Lawrence P. Donovan, III, Monrovia, all of Calif., assignors to Crown City Plating Co., El Monte, Calif.

Continuation-in-part of Ser. No. 159,585, Jun. 16, 1980, which is a continuation-in-part of Ser. No. 970,923, Dec. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 159,503, Jun. 16, 1980, Pat. No. 4,309,462, which is a continuation-in-part of Ser. No. 970,929, Dec. 19, 1978, abandoned. This application 1980, Ser. No. 218,513
Claims priority, application United Kingdom, 1979, 7948565
Int. Cl.³ B05D *3/10*
U.S. Cl. 427—304 **32 Claims**

1. In a process for preparing the surface of a polyamide substrate for electroless plating which includes the step of etching the polyamide substrate with an aqueous acid etch solution comprising at least one organic acid containing from 2 to about 10 carbon atoms in the molecule and present in the aqueous solution in a concentration of at least about 3 percent by weight of the solution and sufficient to render the polyamide substrate directly receptive to an electroless plating catalyst and depositing a metal electroless plating catalyst on the surface of the etched polyamide substrate, the improvement which comprises including in the aqueous acid etch solution from about 1 to about 10 percent by weight of solution of at least one inorganic acid which is nondeleteriously reactive with respect to said organic acid.

4,335,165

SNAP TOGETHER ORNAMENT

Roy A. Powers, 18537 Arrow Hwy., Covina, Calif. 91722

Filed 1981, Ser. No. 245,942
Int. Cl.³ A47G *33/08*
U.S. Cl. 428—8 **5 Claims**

1. An ornamental structure comprising:
a. A first planar member having a centered opening, said opening being adapted to allow said member to temporarily spring inward and four (4) equally angularly spaced peripheral notches;
b. A second planar member having a centrally disposed elongate slot adapted to receive said first member and a pair of opposed peripheral notches on a line perpendicular to and bisecting the axis of said elongate slot, such that upon insertion of said first member into said elongate slot, the distal ends of said elongate slot lockingly engage a pair of said peripheral notches on said first member to secure said first and said second member together in intersecting, interlocking relationship;
c. A third planar member having a centered X-shaped opening adapted to receive said intersected, interlocked first and second members such that upon insertion of said intersected, interlocked first and second members into said X-shaped opening the distal ends of said X-shaped opening lockingly engage said pair of opposed peripheral notches on said second member and the remaining pair of said opposed peripheral notches on said first member to secure said first, second and third members in a rigid intersectioning relationship.

4,335,166

METHOD OF MANUFACTURING A MULTIPLE-PANE INSULATING GLASS UNIT

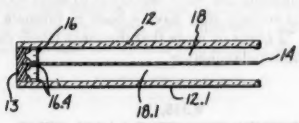
Renato A. Lizardo, Minnetonka, and Roger D. O'Shaughnessy, Chaska, both of Minn., assignors to Cardinal Insulated Glass Co., Minneapolis, Minn.

Filed 1981, Ser. No. 262,424

Claims priority, application Fed. Rep. of Germany, 1980, 3043973

Int. Cl.³ E06B 3/24

U.S. Cl. 428—34 10 Claims



1. Method of manufacturing a multiple-pane insulating glass assembly characterized by the steps of

(a) Forming a substantially sealed integral unit comprising supporting a flexible, heat-shrinkable plastic sheet between parallel, spaced glass panes, the sheet being substantially parallel to but spaced from confronting surfaces of the panes and being fixed at its edges with respect to edges of the panes; and

(b) Heating the unit to cause the plastic sheet to shrink and become taut and wrinkle-free between the panes.

4. Method of manufacturing a multiple-pane insulated glass assembly comprising the steps of

(a) Providing a pair of glass panes;

(b) Attaching an elongated spacer to one surface of each pane about the periphery of the pane, each spacer having a generally flattened, continuous surface lying in a plane parallel to but spaced from the surface of the pane to which it is attached, and the spacer attached to one pane being congruent to the spacer attached to the other pane;

(c) Supporting between the flattened surfaces of the spacers a heat-shrinkable plastic sheet and providing a sealant between adjacent edges of said panes to provide an integral substantially sealed unit; and

(d) Heating the integral unit to cause the heat-shrinkable plastic sheet to shrink and to become taut and wrinkle-free between the glass panes.

9. Method of manufacturing a multiple-pane insulating glass assembly comprising the steps of:

(a) Forming a substantially sealed integral unit comprising a pair of spaced, parallel glass panes and a heat-shrinkable plastic sheet substantially parallel to the panes but spaced equidistant from confronting surfaces of the panes, the sheet being fixed at its edges with respect to edges of the panes;

(b) Heating the unit to cause the plastic sheet to shrink and to become taut and wrinkle-free between the panes, and then cooling the unit, the glass panes protecting the plastic film from temperature extremes during the heating and cooling steps.

10. The multiple-pane insulating glass assembly produced by the method of claim 1.

4,335,167

BRAKE FLUID RESERVOIR COMPRISING POLYMETHYLPENTENE AND 10-20% GLASS FIBERS

John W. Kolditz, Alton, Ill., assignor to Edison International, Inc., Rolling Meadows, Ill.

Filed 1980, Ser. No. 155,453

Int. Cl.³ B65D 6/34; B32B 27/20; C08K 7/14

U.S. Cl. 428—35 8 Claims

1. In a brake fluid reservoir for a hydraulic brake system, the improvement comprising at least a portion of said brake fluid reservoir being formed of a composition consisting essentially of polymethylpentene resin and from about 10% to about 20% of glass fibers by weight of the resin.

4,335,168

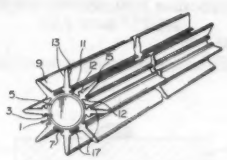
HAIR STYLER EXTRUSION

Rayko Ergaver, Nassau, The Bahamas, assignor to Capella Inc., Freeport, The Bahamas

Filed 1980, Ser. No. 181,508

Int. Cl.³ B32B 1/08

U.S. Cl. 428—36 10 Claims



1. An extrusion forming a hair styler consisting of a generally cylindrical tube having a circular outer cross section, a plurality of radially, outwardly extending elongate ridges spaced equidistantly around the tube and extending longitudinally along the tube, the base of each ridge being integral with the tube, and a groove between each pair of adjacent ridges, each groove being formed between ridge projections extending transversely from adjacent sides of adjacent ridges and spaced from and adjacent to said base, said ridge projections each being defined by a pair of walls extending outwardly from the respective ridge.

4,335,169

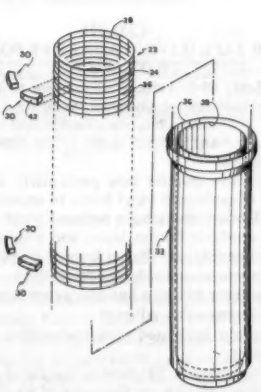
SLOTTED CONCRETE PIPE

Vincent A. Saggese, 15 Pleasant View Dr., Bayville, N.Y. 11709

Division of Ser. No. 89,955, Oct. 31, 1979, abandoned. This application 1980, Ser. No. 219,379

Int. Cl.³ F16L 9/00; E02B 11/00

U.S. Cl. 428—36 8 Claims



1. An insert for use with other similar inserts in forming slotted concrete pipe of the type including a hollow tube of concrete with a grid of reinforcing bars embedded therein and a plurality of spaced slots therein, each insert comprising; a hollow member open at both ends and adapted to be arranged with the bars of the grid in position to communicate with the interior and exterior of the concrete pipe, and means for affixing each insert in predetermined position with respect to the grid and the other similar inserts prior to and during formation

of the pipe therearound and within the formed concrete pipe thereafter so that a slotted concrete pipe of predetermined configuration is provided with a plurality of spaced slots over its surface area.

4,335,170

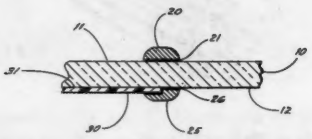
SIMULATED STAINED AND LEADED GLASS WINDOWS

Donald Butler, Costa Mesa, Calif., assignor to Stained Glass Overlay, Inc., Mission Viejo, Calif.

Division of Ser. No. 962,123, Nov. 20, 1978, abandoned. This application 1980, Ser. No. 158,919

Int. Cl.³ B44F *1/06*

U.S. Cl. 428—38 **12 Claims**



1. A process for producing a simulated stained and leaded glass structure from a pane of glass or plastic having a front side and a reverse side comprising the steps of:

a. adhering extruded lead strips to the front side of the pane thereby forming closed design segments thereof.

b. providing at least one sheet of polyester material with adhesive on one side thereof;

c. covering the adhesive on said one side of said polyester material with a lubricant whereby the adhesive is temporarily rendered inactive;

d. positioning said one side of said sheet to said pane correspondingly coinciding with the closed design segments formed on said front side thereof;

e. trimming the edges of said sheet to correspond to said closed design segments; and,

f. removing said lubricant by squeezing said sheets against the pane whereby said sheet is permanently bonded to said pane.

4,335,171

TRANSFER TAPE HAVING ADHESIVE FORMED FROM TWO LAMINAE

Robert E. Zenk, River Falls, Wis., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed 1980, Ser. No. 194,460

Int. Cl.³ A61F *13/02;* B32B *27/00;* C09U *7/02*

U.S. Cl. 428—40 **4 Claims**

1. An adhesive transfer tape particularly adapted for the application of cushioned vinyl fabric to enameled automobile roofs, said fabric comprising a textured vinyl film, a resilient nonwoven synthetic fibrous layer, and a thin layer of polymeric foam bonding said fibrous layer to one face of said film, said transfer tape comprising in combination:

a. a release liner having a low energy surface, to one face of which is removably adhered

b. a composite laminated pressure-sensitive adhesive layer comprising

(1) a first lamina of 100 parts by weight of a soft pressure-sensitive adhesive, on the order of 50–125 micrometers thick, having an average tack value of at least about 800 grams per centimeter width, consisting essentially of a 95.5:4.5 isooctyl acrylate:acrylic acid copolymer tackified with about 50 parts by weight of a hydrogenated rosin ester or hydrogenated rosin acid, and

(2) a second lamina of a firm pressure-sensitive adhesive, on the order of 5–50 micrometers thick, consisting essentially of a 57.5:35:3.5 isooctyl acrylate:methyl acrylate:acrylic acid terpolymer, said adhesive characterized by a low initial tack of not more than about 100 grams per centimeter width and ease of separation when inadvertently briefly placed in contact with itself, but a buildup to a high adhesion level, greater than 700 grams per centimeter width, within 30 minutes after application to an automobile enamel surface,

whereby said first lamina is adapted to penetrate and bond to the nonwoven fibrous layer of said vinyl fabric, even when the nonwoven layer has been treated with a fluorochemical to retard the penetration of moisture, and said second lamina is adapted to bond lightly enough to an enameled automobile roof to permit repositioning within 30 seconds after application without delaminating the vinyl fabric but to bond so firmly to such enameled surface after having been in intimate contact therewith for 72 hours or more that the vinyl fabric cannot be removed without delamination.

4,335,172

PRESSURE SENSITIVE LABEL STRIP

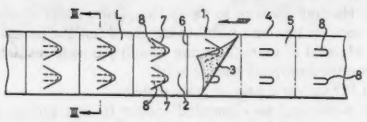
Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato, Japan

Continuation-in-part of Ser. No. 926,704, Jul. 20, 1978, Pat. No. 4,210,688, which is a continuation-in-part of Ser. No. 867,007, Jan. 5, 1978, abandoned. This application 1979, Ser. No. 93,634

Claims priority, application Japan, 1978, 53/155772[U]

Int. Cl.³ G09F *3/00;* B65D *65/30;* B32B *3/16*

U.S. Cl. 428—42 **9 Claims**



1. A pressure sensitive label strip comprising:

a tape-like strip of label material, said label material strip being divided by transverse parting lines into a plurality of individual label pieces, each said label piece having a periphery and having at least one feeding cut line provided elsewhere than in said periphery of said label piece; and

a tape-like strip of backing material, said strip of label material being releasably adhered to one surface of said strip of backing material, said backing material strip being provided with at least one feeding cut line corresponding to and generally in registry with to be overlaid by a respective said feeding cut line in said label material strip,

said feeding cut line in said backing material strip having a shape different from the shape of said feeding cut line in said label material strip, each of said feeding cut lines defines a tongue in its respective said strip, and each of said tongues defined by said feeding cut lines in said label material strip has a greater surface area than the respective said tongue defined by said feeding cut lines in said backing material strip.

4,335,173

METHOD AND MEANS FOR REDUCING UNDESIRABLE EFFECTS OF DIRT PARTICLES ON A FLEXIBLE RECORD DEVICE

Angel Caraballo, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed 1980, Ser. No. 189,503

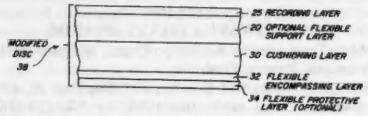
Int. Cl.³ B32B *3/02, 27/30;* H04N *5/76*

U.S. Cl. 428—65 **9 Claims**

1. In a flexible record device comprising a flexible support layer having a recording layer on one side thereof,

the improvement wherein said flexible record device has superposed on the opposite side of said recording layer a cushioning layer having an average thickness of from about 0.17 millimeter to about 0.64 millimeter completely

enveloped either by a flexible encompassing layer or by a flexible encompassing layer and said flexible support layer; said cushioning layer comprising an amorphous



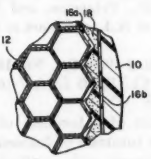
film-forming material and said flexible encompassing layer being immiscible with and inhibiting diffusion therethrough of said amorphous film-forming material.

4,335,174

HONEYCOMB STRUCTURE END CLOSURE

Raymond P. Belko, Blackwood, N.J., assignor to The Boeing Company, Seattle, Wash.

Filed 1980, Ser. No. 183,939
Int. Cl.³ B32B *3/12, 5/18*
U.S. Cl. 428—73 **6 Claims**



1. In a honeycomb structure, a method of securing and sealing an end closure to an otherwise exposed honeycomb core end section which comprises:

positioning a tape adhesive adjacent the exposed honeycomb core;

placing a foam adhesive adjacent the tape adhesive;

positioning the end closure material outboard from the foam adhesive; and

curing said adhesives whereby said foam adhesive forces said tape adhesive to conform with the contours of the honeycomb core.

4,335,175

THERMOPLASTIC FILM LAMINATES

James L. Webb, Simpsonville, S.C., assignor to W. R. Grace & Co., Duncan, S.C.

Filed 1980, Ser. No. 193,245
Int. Cl.³ B32B *27/08, 27/18*
U.S. Cl. 428—213 **4 Claims**

1. A thermoplastic film laminate having improved delamination resistance comprising:

(a) a first layer comprising an ethylene-vinyl acetate copolymer;

(b) a second layer comprising an ethylene-acrylic acid copolymer, one surface of said first layer being bonded to one surface of the second layer;

(c) a third layer comprising an ionomer, said third layer being bonded to the other surface of the second layer; and,

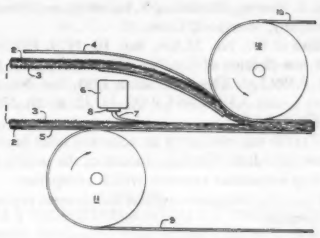
(d) said first, second, and third layers being melt joined without adhesive therebetween.

4,335,176

BONDED NEEDLED FIBER GLASS THERMOPLASTIC REINFORCED MATS

John A. Baumann, Lower Burrell, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed 1980, Ser. No. 209,442
Int. Cl.³ D04H *3/10, 3/12*
U.S. Cl. 428—228 **12 Claims**



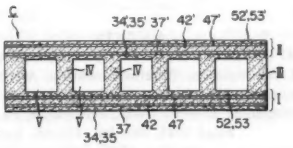
1. A stampable laminate product comprising two mats of glass fibers, said mats being constructed from continuous strands which have been needled and which have a spike surface and a non-spike surface, said mats being oriented in the laminate so that the spike surface of each mat faces the surface of the laminate and wherein the needled mats are impregnated with molten thermoplastic resin which is subsequently coated to provide a laminate having thermoplastic resin surfaces.

4,335,177

GLASS FIBER-REINFORCED CEMENT PLATES

Shigeru Takeuchi, Osaka, Japan, assignor to Kurimoto Iron Works, Ltd., Osaka, Japan

Filed 1980, Ser. No. 191,801
Claims priority, application Japan, 1979, 54-129019; 1980, 55-99041; 1980, 55-99647
Int. Cl.³ B32B *5/12, 5/14, 5/28, 13/14*
U.S. Cl. 428—247 **11 Claims**



1. A laminated, glass fiber-reinforced, hydraulic cement plate, comprising:

a core of hydraulic cement mortar containing regulated set hydraulic cement, said core having two opposite faces; two laminated layer structures each bonded to a respectively opposite face of said core, each layer structure comprising a first layer of chopped glass fiber strands, said first layer having an inner surface and an outer surface, the inner surface of said first layer being disposed adjacent to the associated face of said core, a second layer of continuous glass fibers, said second layer having an inner surface and an outer surface, the inner surface of said second layer being disposed adjacent to the outer surface of said first layer and a third layer of chopped glass fiber strands, said third layer having an inner surface and an outer surface, the inner surface of said third layer being disposed adjacent to the outer surface of said second layer, said layer structures being impregnated with said mortar and being integral with said core.

7. A cement plate according to claim 1 wherein said continuous glass fiber layers are woven or knitted net materials having a pitch of about 10 mm.

4,335,178

TEXTILES CONTAINING A POLY(OXYORGANOPHOSPHATE/PHOSPHONATE) FLAME RETARDANT

Ralph B. Fearing, Bardonia, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 73,836, Sep. 10, 1979, Pat. No. 4,268,633, which is a division of Ser. No. 898,241, Apr. 20, 1978, Pat. No. 4,199,534. This application 1981, Ser. No. 224,430

Int. Cl.³ D06M *9/00, 13/32*; B32B *27/00*

U.S. Cl. 428—253 **2 Claims**

1. Textile incorporating an adherent resin binder containing a flame retardant effective amount of the product formed by a two step sequential reaction which comprises:

(1) reacting diorgano organophosphonate represented by the formula:

wherein R, R_1 and R_2 are the same or different organic radicals selected from saturated hydrocarbon radical, alkaryl radical, aralkyl radical, and aryl radical; with reactant consisting of (i) phosphorus oxide reagent, or (ii) phosphorus oxide reagent with an alcohol, to yield a metaphosphate/phosphonate reaction product, wherein the mole ratio of said diorgano organophosphonate to said phosphorus oxide reagent (as P_2O_5) is in the range from about 1:1 to about 2.5:1, and said optionally employed alcohol is not in excess of one mole of alcohol hydroxyl per three moles of phosphorus anhydride unit formed by the reaction of phosphorus oxide reactant with diorgano organophosphonate, and;

(2) reacting the reaction product of step (1) with reactant comprising (I) epoxide, or (II) epoxide with an alcohol to yield poly(oxyorganophosphate/phosphonate) product.

4,335,179

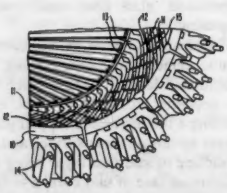
IMPREGNATED HIGH VOLTAGE SPACERS

Morris A. Mendelsohn, Wilkins Township, Allegheny County, and Francis W. Navish, East Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1981, Ser. No. 230,489

Int. Cl.³ B32B *7/00*

U.S. Cl. 428—273 **12 Claims**



1. A resin impregnated spacer, useful for bracing electrical conductors, comprising a porous, flexible, heat resistant material impregnated with a resin consisting essentially of:

(A) 100 parts by weight of an epoxy resin system having a viscosity at 25° C. of up to about 6,000 cps.,

(B) about 2 parts by weight to about 8 parts by weight of a Lewis acid curing agent, and

(C) about 0.3 parts by weight to about 7 parts by weight of dibutylphosphite, where said resin system can cure at room temperature.

4,335,180

MICROWAVE CIRCUIT BOARDS

G. Robert Traut, South Killingly, Conn., assignor to Rogers Corporation, Rogers, Conn.

Continuation-in-part of Ser. No. 972,994, Dec. 26, 1978, abandoned. This application 1980, Ser. No. 213,876

Int. Cl.³ B32B *27/00*

U.S. Cl. 428—303 **14 Claims**

1. A circuit board comprising:

a sheet of dielectric material, the dielectric material comprising a composite of polymer binder, particulate ceramic dielectric filler material and fibers selected from the group consisting of glass, fibrous aluminum silicate, fibrous micro-crystalline materials, quartz and zirconia, said fibers having an average diameter which is less than 3 micrometers and an average length which is less than 3 millimeters, the ratio of the weight of the fibers to the weight of non-filler in the material being in the range of 0.07 to 0.2; and

a sheet of conductive foil directly adhered to each of the surfaces of the sheet of dielectric material.

4,335,181

MICROWAVEABLE HEAT AND GREASE RESISTANT CONTAINERS

John P. Marano, Jr., Princeton, and Maya S. Farag, North Brunswick, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed 1980, Ser. No. 164,993

Int. Cl.³ B32B *5/18, 7/00, 27/00*

U.S. Cl. 428—319.3 **7 Claims**

1. Shaped articles of a laminate of non-crosslinked heat resistant film and a substrate of foamed or unfoamed sheet of polymers or copolymers with a softening temperature below 190° F., in which the heat resistant film is on the interior surface; said articles being resistant to hot fats when heated in microwave oven.

4,335,182

METHOD OF PRODUCING A MOLDED COMPOSITE FOAM BODY PROVIDED WITH A COVER LAYER AND THE RESULTANT PRODUCT

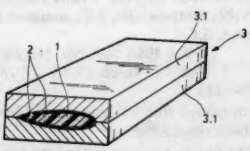
Konrad Brand, Hoehenkirchen, and Dieter Franz, Jettenbach, both of Fed. Rep. of Germany, assignors to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed 1981, Ser. No. 224,658

Claims priority, application Fed. Rep. of Germany, 1980, 3002584

Int. Cl.³ B29D *27/00*

U.S. Cl. 428—319.3 **4 Claims**



1. A method for producing a mold body by combining a core blank of heat moldable hard foam material with a cover layer made at least partially of heat curable synthetic material in a common mold having at least one mold cavity, comprising the following steps, starting with said foam core blank having dimensions larger than said mold cavity, mechanically densify-

ing said core blank prior to its insertion into said mold cavity whereby said core blank has a tendency to elastically expand in response to heating, said mechanically densifying step taking place under a pressure substantially corresponding to the pressure required to be applied for the shaping of the cover layer in the presence of a shaping and curing temperature, said mechanical densifying step producing said core in a predensified form with dimensions substantially corresponding to the dimensions of the mold cavity, lining said mold cavity with said cover layer to form a lined mold cavity, inserting said predensified core into said lined mold cavity, closing the mold cavity and exposing said cover layer in the mold to said shaping and curing temperature whereby said shaping and curing temperature triggers the tendency of said predensified core into an elastic expansion of the predensified core inside said mold to press the core against said cover layer as the cover layer is curing to thereby intimately bond the coverlayer to the core due to said curing under pressure caused by said elastic expansion of said core.

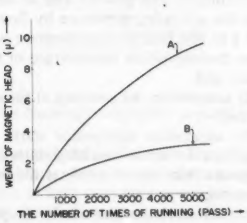
4. A mold body when manufactured by the steps of claim **1** or **2** or **3**.

4,335,183

MAGNETIC RECORDING MEDIUM AND METHOD OF FABRICATING IT

Hiroshi Hosaka, Tokyo, Japan, assignor to Tokyo Magnetic Printing Co., Ltd., Japan

Filed 1981, Ser. No. 257,944
Int. Cl.³ B05D *3/06*
U.S. Cl. 428—336 **8 Claims**



1. A magnetic recording medium comprising a substrate of paper sheet and a magnetic recording layer applied to said substrate, said layer containing a magnetic material and an ultraviolet-curing binder resin.

5. A method of fabricating a magnetic recording medium comprising the steps of preparing a substrate of paper sheet, applying to said substrate a magnetic paint containing a magnetic material and an ultraviolet-curing binder resin, and irradiating said applied paint film with ultraviolet rays to cause said paint film to cure and to thereby form a magnetic film.

4,335,184

RECORDING PAPER

Shigehiko Miyamoto, Kamagaya, and Yoshinobu Watanabe, Matsudo, both of Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 196,560
Claims priority, application Japan, 1979, 54-132542
Int. Cl.³ B41M *5/00*; G01D *15/34*
U.S. Cl. 428—342 **8 Claims**

1. An ink-jet recording paper improved in image quality, comprising a base paper containing substantially no sizing agent and size-fixing agent, the pH of its cold water extract being 5.0 to 10.0, and, disposed thereon, a coating layer containing a saponified-type petroleum resin sizing agent obtained by introducing an α,β-unsaturated carboxylic acid or anhydride into a polymerizate or modified polymerizate of C_4-C_{11} fraction from naphtha cracking and saponifying the polar groups, the application rate of the coating layer being from 0.10 to 1.04 g/m^2 in terms of said saponified-type petroleum resin sizing agent.

4,335,185

INDIGO-DYEABLE POLYESTER FIBERS

Robert L. Adelman, and John J. P. Turner, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 220,809
Int. Cl.³ D02G *3/00*
U.S. Cl. 428—361 **4 Claims**

1. Indigo-dyeable polyester fiber comprising polyester fiber coated with the cross-linked product of polyvinyl alcohol and a water-soluble polyamide containing secondary amino groups in the polymer chain which have been reacted with epichlorohydrin.

4,335,186

CHEMICALLY MODIFIED ASPHALT COMPOSITIONS

Alfred Marzocchi; Michael G. Roberts, and Charles E. Bolen, all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Division of Ser. No. 852,898, Nov. 18, 1977, Pat. No. 4,166,752. This application 1979, Ser. No. 40,368
Int. Cl.³ C08L *95/00*; D02G *3/18, 3/36*
U.S. Cl. 428—375 **3 Claims**

1. Glass fibers coated with a chemically modified asphalt prepared by reaction at a temperature of 100° to 500° C. of an asphalt with a nitrogen-containing compound selected from the group consisting of (a) ammonia, (b) a polyalkylene polyamine and (c) an aromatic diamine having the formula H_2N—R—NH_2 wherein R is a divalent aromatic group containing 6-15 carbon atoms.

4,335,187

METHOD FOR BONDING POLYCARBONATE TO METAL

Thomas G. Rukavina, Lower Burrell, and Alfred L. Maryland, Pittsburgh, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed 1981, Ser. No. 239,854
Int. Cl.³ B32B *27/36*
U.S. Cl. 428—412 **10 Claims**

1. A method for bonding metal to polycarbonate comprising the steps of:

a. preparing a reaction mixture comprising substantially equivalent proportions of
   (1) an isocyanate terminated polyester urethane prepolymer; and
   (2) a trifunctional species capable of crosslinking said prepolymer;
b. applying said reaction mixture at the interface of the metal and polycarbonate surfaces to be bonded; and
c. curing said reaction mixture.

4,335,188

LAMINATES

Keishiro Igi, Kurashiki, and Ishii Masao, Ibara, both of Japan, assignors to Kuraray Company, Limited, Kurashiki, Japan

Filed 1980, Ser. No. 152,320
Claims priority, application Japan, 1979, 54/71867
Int. Cl.³ B32B *15/08*
U.S. Cl. 428—458 **14 Claims**

1. A laminated structure comprising at least two adherends bonded together with a polyester made from terephthalic acid or a dicarboxylic acid mixture containing at least 85 mole % of terephthalic acid, 0.65 to 0.97 mole per mole of said terephthalic acid or dicarboxylic acid mixture of 1,4-butanediol or a polymethylene glycol mixture containing at least 80 mole % of 1,4-butanediol and 0.030 to 0.35 mole per mole of said tereph-

thalic acid or dicarboxylic acid mixture of polyethylene glycol having a molecular weight of 150 to 550, the total amount of the diol constituents being one mole per mole of said terephthalic acid or dicarboxylic acid mixture, said polyester having a crystallinity of not less than 25% and being substantially free from spherulites.

4,335,189

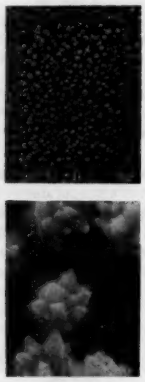
RESOLUTION STANDARD FOR SCANNING ELECTRON MICROSCOPE COMPRISING PALLADIUM SPINES ON A METAL SUBSTRATE

Carmelo F. Aliotta, Beacon, and Morris Anschel, Carmel, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed 1980, Ser. No. 172,577

Int. Cl.³ H01F *1/00*; G01N *31/00*

U.S. Cl. 428—611 **5 Claims**



1. A resolution standard for a scanning electron microscope, comprising,

a metal substrate,

clusters of palladium formed on the substrate, the clusters being generally spaced apart for ease of acquisition by the operator of a scanning electron microscope and having spines with dimensions on the order of 50 Angstroms at their tips.

4,335,190

THERMAL BARRIER COATING SYSTEM HAVING IMPROVED ADHESION

Robert C. Bill, Rocky River, and James S. Sovey, Strongsville, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed 1981, Ser. No. 229,233

Int. Cl.³ B32B *15/04*; B21D *39/00*

U.S. Cl. 428—623 **10 Claims**

1. A coated article of manufacture having a thermal barrier coating system comprising

a substrate selected from the group consisting of nickel- and cobalt-based superalloys, dispersion-strengthened alloys, composites, and directional eutectics,

a bond coating consisting essentially of a material selected from the group consisting of NiCrAlY and CoCrAlY covering said substrate, said bond coating having an ion sputter cleaned surface,

a primer film consisting essentially of ZrO_2 stablized with another oxide bonded to said textured surface, and

a ceramic thermal barrier coating bonded to said primer film.

4,335,191

LITHIUM CELLS

Emanuel Peled, Even Yehuda, Israel, assignor to Tadiran Israel Electronics Industries Ltd., Tel-Aviv, Israel

Filed 1980, Ser. No. 172,688

Int. Cl.³ H01M *4/00*

U.S. Cl. 429—94 **5 Claims**

1. In a lithium cell of the wound-electrode high power type comprising an oxidizable lithium anode, a current collector, an electrolyte comprising a solute selected from the group consisting of $LiAlCl_4$, $LiBCl_4$ and mixtures thereof dissolved in an oxyhalide solvent, the improvement which comprises employing a concentration of the solute in the electrolyte of between about 0.1 M to 0.6 M, whereby the short-circuit current is reduced, thereby rendering the cell resistant to explosion upon short-circuiting.

4,335,192

METHOD OF PREPARING A SINTERED IRON ELECTRODE

Antony Oliapuram, Frankfurt, Fed. Rep. of Germany, assignor to Varta Batterie A.G., Hanover, Fed. Rep. of Germany

Filed 1980, Ser. No. 197,216

Claims priority, application Fed. Rep. of Germany, 1979, 2941765

Int. Cl.³ H01M *4/26, 4/52*

U.S. Cl. 429—221 **14 Claims**

1. The process of producing a highly active metallic sintered iron electrode which is provided with a metallic support insert comprising

treating a mixture of iron powder and an ammonium halogenide as the activating substance by first maintaining it for about ½ to one hour at a temperature which is closely below the decomposition temperature of the ammonium halogenide, and

subsequently completing the sintering at the actual sintering temperature,

whereby the ammonium halogenide starts to function in activating manner before reaching sintering temperature and disappears from the electrode at the beginning of the actual sintering.

12. The sintered iron electrode made by the process of claim 1.

4,335,193

MICROPOROUS FILM, PARTICULARLY BATTERY SEPARATOR, AND METHOD OF MAKING

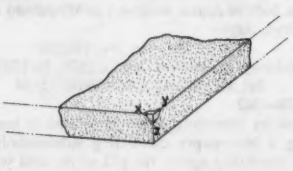
Yoshinao Doi, Kanagawa; Shigeo Kaneko, Tokyo; Takeo Hanamura, Kanagawa; Osamu Fujii, Tokyo; Katsumi Yoshitake; Tetsuhiko Hirata, both of Kanagawa, and Yasuhiro Tanabe, Shizuoka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 694,173, Jun. 9, 1976, abandoned. This application 1979, Ser. No. 16,176

Claims priority, application Japan, 1975, 50/73031

Int. Cl.³ H01M *2/16*

U.S. Cl. 429—251 **29 Claims**



1. A microporous film having improved mechanical strength and electrical resistance which comprises 50 to 80% volume percent of a polyolefin having a number average molecular weight of 15,000 or more, a weight average molecular weight of 85,000 to 250,000 and a standard load melt index of at least

0.01, and 20 to 50 volume percent of an inorganic filler; and which has a void space rate of 30 to 75 volume percent based on the volume of the film.

4,335,194

TWO COLOR ELECTROPHOTOGRAPHIC PROCESS AND MATERIAL

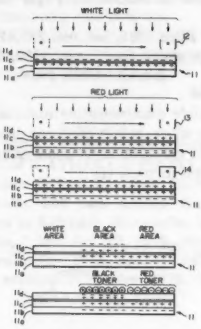
Katsuo Sakai, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed 1979, Ser. No. 12,571

Claims priority, application Japan, 1978, 53-18754; 1978, 53-49671; 1978, 53-146998; 1978, 53-146999

Int. Cl.³ G03G *13/01, 13/22*

U.S. Cl. 430—42 **21 Claims**



1. A two color electrophotographic process comprising the steps of:

(a) providing a material including a first photoconductive layer which is insensitive to light of a predetermined color and sensitive to light of at least one other color, a second photoconductive layer which is sensitive to light of the predetermined color and a first transparent electrically insulating layer;

(b) forming uniform electrostatic charges of opposite polarities at outer surfaces of the first and second photoconductive layers respectively;

(c) radiating a color light image onto an outer surface of the material; and

(d) applying two toners of different colors which are charged to opposite electrostatic polarities respectively to the outer surface of the material.

4,335,195

ELECTROPHOTOSENSITIVE ELEMENT HAS RESIN ENCAPSULATED CDS PARTICLES IN BINDING RESIN

Yuji Nishigaki, Yokohama, and Hirokuni Kawashima, Sakurashin, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 175,021

Claims priority, application Japan, 1979, 54-102488

Int. Cl.³ G03G *5/087*

U.S. Cl. 430—94 **2 Claims**

1. An electrophotosensitive member having a photoconductive layer consisting essentially of cadmium sulfide powder particles encapsulated in a thermoplastic resin, said encapsulated particles dispersed in a binding resin, wherein the weight ratio of said thermoplastic resin to said powder particles is from 0.03:100 to 3:100.

4,335,196

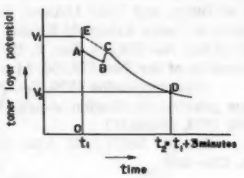
ELECTROSTATIC IMAGE DEVELOPING AND TRANSFER METHOD USES SINGLE COMPONENT MAGNETIC DEVELOPER

Yuzo Ohmuro, Machida; Nin-ichi Kamogawa, Tokyo; Shigeru Uetake, Sayama, and Yoshio Yamazaki, Hino, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 25,783, Apr. 2, 1979, Pat. No. 4,295,427, which is a continuation of Ser. No. 829,795, Sep. 1, 1977, abandoned. This application 1980, Ser. No. 211,344

Int. Cl.³ G03G *13/09*

U.S. Cl. 430—122 **2 Claims**



1. An image forming method whereby a single-component type developer is employed to transfer a sharp image to plain paper comprising the steps of:

providing a developer comprising ferromagnetic and insulating toner particles and free of carrier particles, and having a volume specific resistance of at least 10^{14} Ωcm and a potential decay ratio of less than 50% when measured by

(1) forming on zinc oxide photoconductive material a layer of the developer of a predetermined thickness,

(2) erasing the electrostatic latent image on said photoconductive material which served to form said layer, so as to reveal the potentials of said layer,

(3) measuring the potentials V_1 and V_2 of said layer after one minute from dark decay and after three minutes from the succeeding light decay, respectively, and

(4) determining the decay ratio on the basis of $(V_1-V_2)/V_1\times 100(\%)$;

electrostatically charging said toner particles;

contacting said charged toner particles with photoconductive material on which an electrostatic latent image is provided in order to develop said latent image;

and transferring the developed image onto plain paper.

4,335,197

PHOTOIMAGING PROCESS

William J. Chambers, and Louis Plambeck, Jr., both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 210,232

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—271 **17 Claims**

1. A method for forming a polymer photoimage, comprising:

(a) exposing, imagewise, a photosensitive element to actinic radiation, the element comprising a substrate coated with a photosensitive layer containing dispersed silver halide particles in operative association with a continuous film-forming phase of polymeric coupler, the coupler characterized by

(i) a number average molecular weight of about 2,000 to 100,000;

(iii) a content of about 10 to 100 milliequivalents per 100 g of polymeric coupler of coupler groups and about 15 to 175 milliequivalents per 100 g of polymeric coupler of at least one of carboxylic, sulfonic and phosphonic acid groups; and

(iii) the ability to couple with a monofunctional develop-

ing agent and thereby become insoluble in aqueous solvents;

(b) developing the layer containing the latent image with a monofunctional developing agent capable of selectively reducing the silver halide in the latent image area and, in its oxidized state, of coupling with the polymeric coupler in the latent image area, thereby insolubilizing the coupler in the form of an image; and

(c) removing the undeveloped, soluble areas of the polymeric coupler by washing with aqeuous solvent.

4,335,198

PROCESS FOR RECORDING

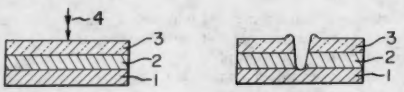
Hiroshi Hanada, Yokohama; Masanao Kasai; Hitoshi Hanadate, both of Tokyo, and Yoko Oikawa, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 858,161, Dec. 6, 1977, abandoned, which is a continuation of Ser. No. 579,700, May 21, 1975, abandoned. This application 1979, Ser. No. 38,840

Claims priority, application Japan, 1974, 49-59215; 1974, 49-90568; 1974, 49-108357

Int. Cl.³ B05D *3/02, 3/06;* **G01D** *15/10*

U.S. Cl. 430—348 **10 Claims**



1. A method of recording information comprising the steps of:

forming information bearing high intensity radiation; and

applying the high intensity radiation to a nonpoisonous recording member having a recording layer which absorbs the high intensity radiation, said recording layer comprising a radiation absorption layer, and an anti-reflection layer comprising a compound consisting of S and Ge and capable of preventing the reflection of the radiation applied to the radiation absorption layer wherein the radiation absorption layer deforms in response to the heat caused by the absorption of the radiation, and the anti-reflection layer deforms in response to said heat to define the recorded information, wherein said high intensity radiation forms a spot or hole on the recording member no greater than about 1.5 microns in diameter.

4,335,199

HIGH CONTRAST BY IMAGEWISE IODIDE INFECTION IN A MIXED SILVER HALIDE SYSTEM

Daniel J. Mickewich, Arden, Del.; John R. Shock, Plainsboro, N.J., and Daniel F. Juers, Fairport, N.Y., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 122,502

Int. Cl.³ G03C *1/84, 5/24*

U.S. Cl. 430—434 **13 Claims**

1. A photographic element comprising a support, and a mixture of two non-fogged silver halide emulsions on said support:

(1) an internally sensitized core-shell emulsion having an internal sensitivity equal to or greater than that of emulsion (2);

(2) a surface-sensitized silver iodobromide or trihalide emulsion capable of releasing iodide ions upon being developed in a stable developer, which iodide ions serve to produce infectious development of exposed grains of emulsion (1).

9. A process wherein a photographic silver halide emulsion film coated upon a support is exposed, and the resulting latent image is translated into a visible silver image by action of a continuous tone developer, characterized in that the silver halide emulsion is composed of a mixture of two non-fogged silver halide emulsions (1) and (2), emulsion (1) being an internally sensitized core-shell emulsion having an internal sensitivity equal to or greater than that of emulsion (2); emulsion (2) being a surface-sensitized silver iodobromide or trihalide emulsion capable of releasing iodide ions upon being developed in a stable developer, and wherein during the development process iodide is released from the surface-sensitized iodobromide or trihalide emulsion to induce development of the exposed areas in the internally sensitized core-shell emulsion, whereby a high contrast photographic image suitable for lithographic use is obtained.

4,335,200

SILVER HALIDE PHOTOGRAPHIC MATERIALS

Minoru Ohashi, and Katsuaki Iwaosa, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

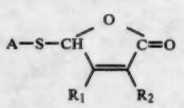
Filed 1981, Ser. No. 297,419

Claims priority, application Japan, 1980, 55/152772

Int. Cl.³ G03C *1/34*

U.S. Cl. 430—446 **4 Claims**

1. A silver halide photosensitive material characterized in that at least one silver halide emulsion layer and/or a layer contiguous to said emulsion layer contains at least one antifoggant of the general formula (I)



wherein A represents the heterocyclic group of a mercapto antifoggant; R_1 and R_2, which may jointly form a benzene ring, represent each a halogen atom or an alkyl, aryl or aryloxy group.

4,335,201

ANTISTATIC COMPOSITIONS AND ELEMENTS CONTAINING SAME

Donald N. Miller, Penfield, and Richard A. Kydd, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed 1980, Ser. No. 209,554

Int. Cl.³ G03C *1/84, 1/38;* **C09K** *3/16*

U.S. Cl. 430—527 **19 Claims**

1. A coating composition for use in forming an antistatic layer in a radiation sensitive element, said composition comprising an aqueous solution of:

(a) a hydrophilic binder;

(b) an anionic fluorinated surfactant; and

(c) an inorganic nitrate.

4,335,202

TETRAAZAUNDECANE AND COMPLEXES AS SENSITIZERS FOR SILVER HALIDE EMULSION

Rolf Hengel, Heilbronn, Fed. Rep. of Germany, and David F. Eaton, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1981, Ser. No. 292,261

Int. Cl.³ G03L *1/28*

U.S. Cl. 430—604 **10 Claims**

1. A negative-working gelatino-silver halide emulsion containing a sensitizing amount of a linear polyamine selected from the group consisting of tetraazaundecane (TAU), an acid salt thereof, and a divalent metal complex thereof.

4,335,203

METHOD FOR IDENTIFYING POTENTIAL CONTRAST MEDIA REACTORS

Elliott C. Lasser, La Jolla, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed 1980, Ser. No. 167,278
Int. Cl.³ C12Q *1/38*
U.S. Cl. 435—23 **4 Claims**

1. In a method of administering an iodinated X-ray contrast medium to a host, of the type wherein the host is tested for sensitivity to said contrast medium before internal administration, the improvement comprising:

assaying for prekallikrein activation by combining a prekallikrein activator with plasma sample of said host to produce kallikrein;

determining the kallikrein activity in said plasma sample over a predetermined period of time by combining said plasma sample with a kallikrein substrate under conditions effective for measuring said activity;

comparing the kallikrein activity obtained to the kallikrein activity in a host known to be sensitive to said contrast medium to determine said sensitivity.

4,335,204

EASILY SPLIT SUBSTRATES FOR THE QUANTIFICATION OF PROTEASES

Karl G. Claeson, Lidingö; Leif E. Aurell, Särö; Leif R. Simonsson, Hising Backa, and Salo Arielly, Kungsbacka, all of Sweden, assignors to Kabi AB, Stockholm, Sweden

Division of Ser. No. 7,447, Jan. 29, 1979, Pat. No. 4,279,810. This application 1981, Ser. No. 247,488
Claims priority, application Sweden, 1978, 7801373
Int. Cl.³ C12Q *1/38*
U.S. Cl. 435—23 **3 Claims**

1. A diagnostic method for the determination of proteases in a substance which comprises contacting the substance with a compound of the formula:

$$R_1—p\text{-}Glu—A_1—A_2—NH—R_2,$$

wherein

R_1 is H or a protective group;

A_1 is Gly, Ala, Val, Leu, Ile, Ser, Thr, Pro, Pip, Phe or Tyr;

A_2 is Arg or Lys; wherein —NH—Rz is a chromogenic or fluorogenic group which is capable of being split by enzymatic hydrolysis to form a cleavage product of the formula $H_2N—R_2$, the amount of which can be quantified; and then determining the amount of said cleavage product which is formed.

4,335,205

LOW PROTEIN DEGRADATION PRODUCT BASAL MEDIUM FOR IDENTIFICATION OF NON-FERMENTATIVE GRAM-NEGATIVE BACILLI AND OTHER MICROORGANISMS

James R. Greenwood, 1275 Barry Ave., Apt. #4, Los Angeles, Calif. 90025

Filed 1979, Ser. No. 27,843
Int. Cl.³ C12Q *1/04*
U.S. Cl. 435—34 **11 Claims**

1. A single low organic nitrogen basal growth medium for the relatively rapid identification of non-fermentative Gram-negative bacilli (NFB) and other microorganisms including the family Enterobacteriaceae, and cytochrome oxidase positive fermenters, comprising:

about 0.5 to about 1.5 gm. of an ammonium ion source,

about 0.1 to about 0.3 gm. of a potassium salt,

about 0.1 to about 0.3 gm. of a magnesium salt,

about 0.2 to about 1.0 gm. of yeast extract,

about 0.2 to about 1.0 gm. of an organic nitrogen source,

0.0 to about 60.0 gm. of agar,

about 0.002 to about 0.060 gm. of an indicator selected from the group consisting of brom cresol purpose, brom thymol blue, and phenol red, and

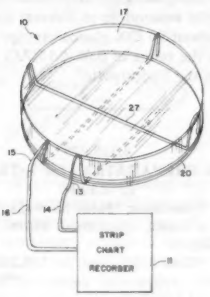
water sufficient to make 1000 ml.

4,335,206

APPARATUS AND PROCESS FOR MICROBIAL DETECTION AND ENUMERATION

Judd R. Wilkins, and David C. Grana, both of Hampton, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed 1981, Ser. No. 235,796
Int. Cl.³ C12Q *1/04*
U.S. Cl. 435—34 **9 Claims**



1. An electrochemical detection method for determining the presence and quantity of specific microorganisms in a sample solution comprising:

filtering the sample solution through a membrane filter impervious to the organism to be detected and quantified;

assembling a pair of electrodes in spaced adjacency relative to each other and each electrode being positioned in abutting relationship with the membrane filter;

positioning the membrane filter and electrodes between two absorbent pads adapted to fit within an open container;

positioning the absorbent pad-filter-electrode assembly within the container so as to leave at least one exposed end of each electrode extending from the container;

providing a retaining clip extending over and contacting the edges of the container and having portions thereof abutting and retaining the absorbent pad-filter-electrode assembly within the container;

sealing a cover over the container so as to leave the exposed end of each electrode extending from the container; and,

attaching a strip chart recorder to the exposed ends of the electrodes to detect and record the electrical output of the electrodes as a function of the presence and quantity of the specific microorganism obtained on the filter from the sample solution.

4,335,207

PROCESS FOR THE PRODUCTION OF HIGH FRUCTOSE SYRUPS AND ETHANOL

Robert E. Heady, Park Forest, Ill., assignor to CPC International Inc., Englewood Cliffs, N.J.

Filed 1980, Ser. No. 156,152
Int. Cl.³ C12P *7/14, 19/02, 19/04*
U.S. Cl. 435—94 **14 Claims**

1. A process for the production of ethyl alcohol and fructose polymers comprising the sequential steps of contacting a sucrose-containing substrate with an effective amount of a fructosyl transferase enzyme to produce a secondary substrate followed by fermenting said secondary substrate with an effective amount of a yeast preparation, that does not hydrolyze

sucrose or fructose polymers or ferment fructose polymers, to ferment the glucose in the secondary substrate to alcohol.

4,335,208

SACCHARIFICATION OF STARCH HYDROLYSATES

Barrie E. Norman, Farum, Denmark, assignor to Novo Industri A/S, Denmark

Filed 1980, Ser. No. 129,314
Int. Cl.³ C12P *19/16, 19/20;* C12R *1/38, 1/685*
U.S. Cl. 435—96 **8 Claims**

1. In a process for saccharifying a starch hydrolysate to a high DX glucose syrup with glucoamylase, the improvement which comprises saccharifying at pH 3–5 in the presence of an enzyme mixture comprising effective amounts of glucoamylase and an acidophilic isoamylase to convert the starch hydrolysate to at least about 96 DX glucose syrup, the glucoamylase dosage being in the range of 0.05–0.15 AG units per gram of dry substance in the hydrolysate.

4,335,209

PROCESS FOR PREPARATION OF L-TRYPTOPHAN BY ENZYME

Yoshiyuki Asai, Yokohama; Masao Shimada, Yamato, and Kenji Soda, Uji, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed 1980, Ser. No. 145,267
Claims priority, application Japan, 1979, 54-55645; 1979, 54-79619; 1980, 55-36197
Int. Cl.³ C12P *13/22*
U.S. Cl. 435—108 **10 Claims**

1. A process for the enzymatic preparation of L-tryptophan which comprises reacting indole with L-serine in the presence of tryptophan synthetase or tryptophanase, wherein DL-serine or D-serine is used as the starting material and DL-serine or D-serine is reacted with serine racemase which does not racemize tryptophan to convert at least a part of D-serine to L-serine, said serine racemase being present with tryptophan synthetase or trytophanase to simultaneously react L-serine with indole.

4,335,210

METHOD OF PRODUCING L-CYSTEINE

Alton Meister, New York, and Joanne M. Williamson, Roosevelt Island, both of N.Y., assignors to Cornell Research Foundation, Ithaca, N.Y.

Filed 1981, Ser. No. 233,564
Int. Cl.³ C12P *13/12*
U.S. Cl. 435—113 **1 Claim**

1. Method for the production of L-cysteine which comprises subjecting L-2-oxothiazolidine-4-carboxylate to the action of 5-oxo-L-prolinase in the presence of adenosine triphosphate.

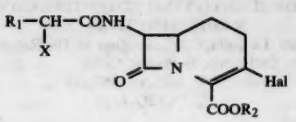
4,335,211

PROCESS FOR PRODUCING OPTICALLY ACTIVE CEPHALOSPORIN ANALOGS

Yukio Hashimoto, Yamato; Seigo Takasawa, Hadano; Tadashi Hirata, Yokohama; Ikuo Matsukuma, Yokkaichi, and Shigeo Yoshiie, Sakai, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

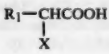
Filed 1980, Ser. No. 206,556
Claims priority, application Japan, 1979, 54-146489
Int. Cl.³ C12P *17/18*
U.S. Cl. 435—119 **4 Claims**

1. A process for producing optically active compounds of cephalosporin analogs represented by the formula (I)



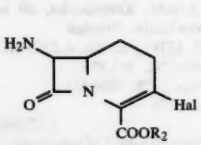
(I)

wherein R_1 represents a substituted or unsubstituted, saturated or unsaturated six-membered carbocyclic or five-membered hexacyclic group, R_2 represents a hydrogen or a protective group of carboxylic acid, Hal represents a halogen atom, the hydrogens at the 6- and 7-positions have cis configuration and X represents a hydrogen, a lower alkyl group, a hydroxy group, a carboxyl group or an amino group, which comprises reacting α,α-disubstituted carboxylic acid represented by the formula (II)

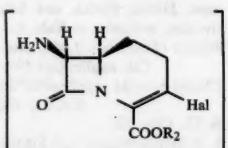


(ii)

(wherein R_1 and X have the same significance as defined above) or a reactive derivative thereof and an optically inactive dl compound represented by the formula (III)



(III)



(III-1)

(wherein R_2 and Hal have the same significance as defined above) in the presence of (1) a microorganism having an ability of producing optically active compounds of the cephalosporin analog represented by the formula (I), from the α,α-disubstituted carboxylic acid or reactive derivative thereof and the compound represented by the formula (III) and belonging to the genus Pseudomonas, Xanthomonas, Escherichia, Aeromonas, Achromobacter, Arthrobacter, Acetobacter, Alcaligenes, Kluyvera, Gluconobacter, Clostridium, Comamonas, Corynebacterium, Sarcina, Staphylococcus, Spirillum, Bacillus, Falvobacterium, Brevibacterium, Protaminobacter, Beneckea, Micrococcus, Proteus, Mycoplana or Rhodopseudomonas, (2) the culture broth of said microorganism, (3) matter recovered from the culture broth of said microorganism capable of causing the production of said optically active compounds or (4) an enzyme produced by said microorganism capable of causing the production of said optically active compounds.

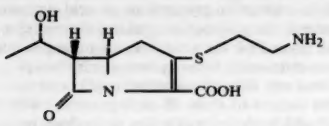
4,335,212

FERMENTATION PROCESS FOR (5R,6S,8S)-3-(2-AMINOETHYLTHIO)-6-(1-HYDROXYETHYL)-7-OXO-1-AZABICYCLO[3.2.0]HEPT-2-ENE-2-CARBOXYLIC ACID

Kenneth E. Wilson, Westfield, N.J., and August J. Kempf, Staten Island, N.Y., assignors to Merck & Co., Inc., Rahway, N.J.

Filed 1981, Ser. No. 274,702
Int. Cl.³ C12P *17/18, 17/10*
U.S. Cl. 435—119 **2 Claims**

1. A process for preparing 8-epi-thienamycin having the structure:



which comprises cultivating a thienamycin-producing strain of *Streptomyces cattleya* in an aqueous nutrient medium containing assimilable sources of carbohydrate, nitrogen and inorganic salts under submerged aerobic conditions and recovering the 8-epi-thienamycin so produced in substantially pure form.

4,335,213

PROCESS FOR THE PREPARATION OF GALACTOSE OXIDASE

Osamu Terada, and Kazuo Aisaka, both of Machida, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 164,523
Claims priority, application Japan, 1979, 54-84407
Int. Cl.³ C12N *9/04*
U.S. Cl. 435—190 **6 Claims**

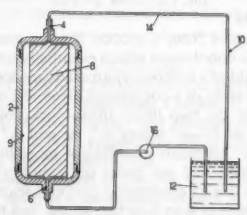
1. A process for producing galactose oxidase which comprises culturing a microorganism belonging to the species Gibberella fujikuroi or Gibberella zeae which is capable of producing said enzyme in a nutrient medium, until substantial enzymatic activity is detected in the culture liquor, and thereafter recovering said enzyme from the culture liquor.

4,335,214

PROCESS FOR PURIFYING PARTICLES OF BIOLOGICAL ORIGIN, PARTICULARLY THE SURFACE ANTIGEN OF THE VIRUS OF HEPATITIS B (AGHBS)

Philippe J. Adamowicz, Garches; Alberte Platel nee Bonnet, La Garenne Colombes, and Ludwig Muller, Plessis Robinson, all of France, assignors to Institut Pasteur, Paris, France

Filed 1980, Ser. No. 213,315
Claims priority, application France, 1979, 79 30135
Int. Cl.³ A61K *39/12*; C12K *7/00*
U.S. Cl. 435—239 **16 Claims**



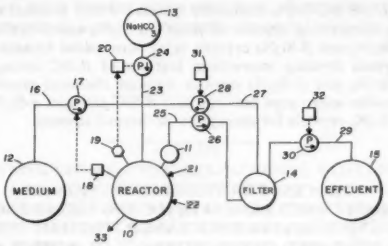
1. In a process for purifying or concentrating biological particles in a liquid composition containing said biological particles in a solution or suspension wherein said liquid composition is subjected to rate zonal banding by centrifugation in a gradient within a centrifuge, the improvement which comprises purifying said liquid composition by continuously circulating said liquid composition in a closed circuit into and out from the centrifuge, wherein said centrifuge is part of said closed circuit, the continuous circulation is carried out at the same time as the centrifugation is carried out and the rate and period of circulation are such that said liquid composition is recirculated through said centrifuge and part of the particles in said liquid composition is collected by the gradient at each passage.

4,335,215

METHOD OF GROWING ANCHORAGE-DEPENDENT CELLS

William R. Tolbert, Manchester; Mary M. Hitt, St. Louis; Joseph Feder, University City, and Richard C. Kimes, Creve Coeur, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed 1980, Ser. No. 181,582
Int. Cl.³ C12N *5/02*; C12M *3/02, 1/24*; C12P *1/00*
U.S. Cl. 435—241 **10 Claims**



1. In a method of growing anchorage-dependent cells in agitated microcarrier suspension culture, the improvement comprising aggregating the microcarriers and cells by periodically providing a temporary residence of said microcarriers and cells outside the main cell culture reactor agitation zone and in a separate compartment wherein they are subjected to a gentle tumbling action within a confined space having substantially the same environmental conditions as in said main cell culture reactor agitation zone and thereafter recycling said microcarriers and cells to said main cell culture reactor agitation zone.

4,335,216

LOW TEMPERATURE FIRED DIELECTRIC CERAMIC COMPOSITION AND METHOD OF MAKING SAME

Charles E. Hodgkins, Lewiston, and Mark J. Giermek, Tonawanda, both of N.Y., assignors to TAM Ceramics, Inc., Niagara Falls, N.Y.

Filed 1981, Ser. No. 259,520
Int. Cl.³ C04B *35/00, 35/46*
U.S. Cl. 501—32 **14 Claims**

1. A dielectric ceramic composition formed from about 92 to about 96.5 percent by weight of a base ceramic preparation which base ceramic preparation consists essentially of from about 72 to about 80 weight percent barium titanate, from about 6 to about 15 weight percent strontium titanate, from about 6 to about 15 weight percent barium zirconate, from about 0.4 to about 0.8 weight percent titanium dioxide, and from about 0.1 to about 0.4 weight percent manganese dioxide, wherein the combined weight percent of strontium titanate and barium zirconate is from about 20 to about 28 percent by weight; and from about 3.5 to about 8 percent by weight of a glass frit which consists essentially of from about 5 to about 10 weight percent zinc oxide, from about 5 to about 10 weight percent silicon dioxide, from about 9 to about 15 percent boron oxide, from about 35 to about 45 weight percent lead oxide, from about 15 to about 25 percent bismuth trioxide, and from about 10 to about 19 weight percent cadmium oxide.

4,335,217

SIC-Si_3N_4 COMPOSITE SYSTEM FOR SPECIAL HEAT-RESISTING CERAMIC MATERIALS AND ITS FABRICATION METHOD

Tokuaki Hatta; Haruyuki Ueno; Yuji Katsura; Kazushige Fukuda, and Hiroshi Kubota, all of Kitakyushu, Japan, assignors to Kurosaki Refractories Co., Ltd., Fukuoka, Japan

Filed 1980, Ser. No. 210,647

Claims priority, application Japan, 1979, 54-156032

Int. Cl.³ C04B *35/56, 35/58*

U.S. Cl. 501—92 **11 Claims**

1. An SiC-Si_3N_4 composite system for heat resistant materials, comprising crystals of β-SiC, α-Si_3N_4 and β-Si_3N_4, said α-Si_3N_4 and β-Si_3N_4 crystals being surrounded by said β-SiC crystals forming interwoven textures of β-SiC among said α-Si_3N_4 and β-Si_3N_4 crystals without chemical bonding to provide micro gaps between said β-SiC and said α-Si_3N_4 and β-Si_3N_4 crystals for absorption of thermal stresses.

4,335,218

PROCESS FOR THE PREPARATION OF A FOAM-CORED LAMINATE HAVING METAL FACERS AND RIGID POLYISOCYANURATE FOAM CORE PREPARED IN THE PRESENCE OF A DIPOLAR APROTIC ORGANIC SOLVENT

David T. DeGuiseppi, Hamden, Conn., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed 1980, Ser. No. 201,137

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—99 **6 Claims**

1. In a process for the preparation of a foam-cored laminate having metal facers and rigid polyisocyanurate foam as the core material the improvement which comprises lowering the cure temperature necessary to assure good adhesion between metal facer and foam core by incorporating, into the polyisocyanurate foam forming reaction mixture which is employed to prepare the foam core, a dipolar aprotic solvent in an amount from about 1 percent by weight to about 10 percent by weight based on total weight of the foam forming mixture.

4,335,219

PROCESS FOR REACTING ISOCYANATES IN THE PRESENCE OF QUATERNARY AMMONIUM ZWITTERIONS

Donald H. Clarke, Essexville; George J. Pomranky, and Donald L. Schmidt, both of Midland, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed 1981, Ser. No. 251,628

Int. Cl.³ C08G *18/18*

U.S. Cl. 521—128 **12 Claims**

1. A process for reacting an organic isocyanate with itself or another organic isocyanate which process comprises contacting an organic isocyanate or a mixture of organic isocyanates with an ar-ammonium zwitterion which is soluble in the isocyanate under conditions such that the ammonium zwitterion initiates the reaction of the isocyanate moieties of the organic isocyanate or mixture of organic isocyanates.

4,335,220

SEQUESTERING AGENTS AND COMPOSITIONS PRODUCED THEREFROM

Charles H. Coney, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed 1981, Ser. No. 251,646

Int. Cl.³ C08J *3/02;* **C08L** *35/02*

U.S. Cl. 523—414 **23 Claims**

1. Composition comprising an aqueous dissipation of a linear, water-dissipatable polymer having carbonyloxy linking groups in the linear molecular structure wherein up to 80% of the linking groups may be carbonylamido linking groups, the polymer having an inherent viscosity of at least about 0.1 measured in a 60/40 parts by weight solution of phenol/tetrachloroethane 25° C. and at a concentration of about 0.25 gram of polymer in 100 ml. of the solvent, the polymer containing substantially equimolar proportions of acid equivalents (100 mole percent), the polymer comprising the reaction products of (a), (b), (c) and (d) from the following components or ester forming or esteramide forming derivatives thereof;

(a) at least one difunctional dicarboxylic acid;

(b) from about 4 to about 25 mole percent, based on a total of all acid, hydroxyl and amino equivalents being equal to 200 mole percent, of at least one difunctional sulfomonomer containing at least one metal sulfonate group attached to an aromatic nucleus wherein the functional groups are hydroxy, carboxyl or amino;

(c) at least one difunctional reactants selected from a glycol or a mixture of a glycol and diamine having two —NRH groups, the glycol containing two —CH_2—OR groups of which at least 0.1 mole percent based on the total mole percent of hydroxy or hydroxy and amino equivalents, is a poly(ethylene glycol) having the structural formula:

$$H-(-OCH_2CH_2-)_n-OH$$

n being an integer of between 2 and about 500; and

(d) from none to at least one difunctional reactant selected from a hydroxy-carboxylic acid having one —CR_2—OH, an aminocarboxylic acid having one —NRH group, an amino-alcohol having one

$$-CR_2OH$$

group and one —NRH or mixtures thereof, wherein each R is an H atom or an alkyl group of 1 to 4 carbon atoms, said composition further comprising a water insoluble, hydrophobic deformable organic substance sequestered therein which is not reactive with said polyester or polyesteramide, said organic substance being nonmiscible with water.

4,335,221

PREPARATION OF MIXTURES OF LINEAR THREE-BLOCK COPOLYMERS, AND MOLDINGS PRODUCED THEREFROM

Karl Gerberding, Wachenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed 1980, Ser. No. 185,531

Claims priority, application Fed. Rep. of Germany, 1979, 2940861

Int. Cl.³ C08F *257/02*

U.S. Cl. 525—89 **4 Claims**

1. A composition from a process for the preparation of a mixture of block copolymers which essentially contain from 70 to 80% by weight of a monovinyl-aromatic monomer and from 20 to 30% by weight of a conjugated diene, the mixture essentially containing the two linear three-block copolymers A^1-A^2-B→A^3 and A^2-B→A^3 where A^1, A^2 and A^3 are non-elastomeric polymer segments of different molecular weight or different structure, and are based on a monovinyl-aromatic compound, and B is an elastomeric polymer segment based on a conjugated diene of 4 to 8 carbon atoms, and the transitions between the polymer segments B and A^3 are gradual and the other transitions are all sharp, by effecting the following process stages in an inert solvent:

(a) in a first process stage, polymerizing 40 to 80% by weight of the total monovinyl-aromatic monomer(s) in the presence of an initial amount of a monolithium-hydrocarbon as the initiator, (Ia), until the monomer(s) has been substantially completely converted to A^1-Li, thereafter

(b) in a second process stage, adding the remaining amount of initiator, (Ib), the molar ratio of Ia:Ib being from 1:2 to 1:7, adding further a proportion of 15 to 30% by weight of the total monovinyl-aromatic monomer(s) to the solution, and continuing the polymerization until the monomer(s) has been substantially completely converted to a mixture of A^1-A^2-Li and A^2-Li, and finally

(c) in a third process stage, adding to the reaction solution a

mixture of from 10 to 30% by weight of the total amount of monovinyl-aromatic monomer(s) to be employed, and from 20 to 30% by weight of conjugated diene monomer, based on the total amount of all monomers to be employed, and after complete conversion of the monomers the mixture of the lithium-terminated block copolymers A^1-A^2-B→A^3-Li and A^2-B→A^3-Li is treated with protonactive compounds and the resulting mixture of block copolymers A^1-A^2-B→A^3 and A^2-B-A^3 is isolated by removing the solvent.

4,335,222

ADHESIVE SYSTEMS AND LAMINATES

Darrell A. Klemme, South Lyndeboro, N.H., assignor to USM Corporation, Farmington, Conn.

Filed 1980, Ser. No. 170,071
Int. Cl.³ C08L *63/00*
U.S. Cl. 523—454 **13 Claims**

1. A heat curable adhesive system comprising an adhesive composition and a curing agent for the composition, said adhesive composition comprising a dispersion of from about 10 to about 30 percent by weight of a polyester, from about 1 to about 6 percent by weight of a polyvinylchloride which comprises from about 25 to 100 percent by weight of a carboxylated polyvinylchloride and from about 1 to about 6 percent by weight of a polyepoxide, said polyester being the product of a reaction between a combination of diols, a combination of phthalic acids and, a combination of phthalic acid anhydrides where:

a. the combination of diols represents from about 30 to about 50 percent by weight of the reactants and consists essentially of 1,4 butane diol and neopentyl glycol and the neopentyl glycol represents from about 55 to about 85 percent by weight of the combination of diols,

b. the combination of phthalic acids represents from about 40 to about 60 percent by weight of the reactants and consists essentially of isophthalic acid and terephthalic acid and the isophthalic acid represents from about 40 to about 80 percent by weight of the phthalic acid combination and,

c. the combination of phthalic acid anhydrides represents from about 5 to about 15 percent by weight of the reactants and consists essentially of hexahydrophthalic anhydride and trimellitic anhydride and the hexahydrophthalic anhydride represents from about 55 to about 95 percent by weight of the phthalic acid anhydride combination and,

a curing agent dispersible in said adhesive composition and capable of initiating cure of said adhesive composition.

4,335,223

HIGH IMPACT MOLDING COMPOSITIONS

Paul W. Flood, Lake Hopatcong; Charles D. Mason, Chatham Township, Morris County, and Stephen R. Schulze, West Caldwell, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 46,536, Jun. 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 914,705, Jun. 12, 1978, abandoned. This application 1980, Ser. No. 209,182
Int. Cl.³ C08L *77/00*
U.S. Cl. 525—179 **32 Claims**

1. A melt-blended polyamide composition comprising:

from 60 to 98 percent by weight of the composition of a polyamide selected from the group consisting of polyhexamethyleneadipamide, polyepsiloncaprolactam, and a mixture of polyhexamethyleneadipamide and polyepsiloncaprolactam,

an acid copolymer of an α-olefin having 2 to 5 carbons, with 1 to 20 mol percent of an unsaturated carboxylic acid having 3 to 8 carbons;

an ester copolymer of an α-olefin having 2 to 5 carbons, with 1 to 20 mol percent of an alkyl ester of an unsaturated carboxylic acid having 3 to 8 carbons and the alkyl group having 1 to 4 carbon atoms, the weight proportions between the acid copolymer and ester copolymer being from 1 part of acid copolymer to 10 parts of ester copolymer up to 30 parts acid copolymer to 1 part ester copolymer;

from about 0.05 to 1.0 percent by weight based on the weight of the composition of a metal oxide having the cation of a metal selected from group IA, IB, IIA, IIB, IIIA, IVA, VA, VIB, VIIB, and VIIIB of the Periodic Table of the Elements, wherein the notched Izod impact resistance of the composition is higher than for a like composition not containing the metal oxide, the composition being blended under conditions wherein the metal compound remains substantially unreacted with the copolymer acid.

4,335,224

POLYMER COMPOSITIONS COMPRISING ETHYLENE POLYMER BLENDS

Kazuo Matsuura, Tokyo; Noboru Yamaoka; Sinichi Yanahashi, both of Yokohama; Katumi Usui, Yokosuka, and Mituji Miyoshi, Kanagawa, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Filed 1981, Ser. No. 239,555
Claims priority, application Japan, 1980, 55/24136
Int. Cl.³ C08L *23/06, 23/08*
U.S. Cl. 525—240 **6 Claims**

1. A polymer composition having a melt index of 0.01 to 5.0 and a density of 0.880 to 0.940, said polymer composition comprising a blend of:

(1) 45 to 70 parts by weight of an ethylene/α-olefin copolymer having an intrinsic viscosity determined in decalin at 135° C. of 2.0 to 10 dl/g and a density of 0.850 to 0.905 which copolymer is obtained by copolymerizing ethylene with an α-olefin having 3 to 12 carbon atoms in a substantially solvent-free vapor phase condition and in the presence of a catalyst comprising a solid substance and an organoaluminum compound, said solid substance containing magnesium and titanium and/or vanadium, and

(2) 55 to 30 parts by weight of an ethylene polymer having an intrinsic viscosity determined in decalin at 135° C. of not higher than 1.7 dl/g and a density not less than 0.950.

4,335,225

ELASTOMERIC POLYPROPYLENE

John W. Collette, Wilmington, Del., and Charles W. Tullock, Landenburg, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 917,282, Jun. 20, 1978, abandoned, which is a continuation-in-part of Ser. No. 814,878, Jul. 12, 1977, abandoned. This application 1981, Ser. No. 240,138
Int. Cl.³ C08F *10/06*
U.S. Cl. 525—240 **15 Claims**

1. As a new product, a fractionable elastic polymer consisting essentially of units derived from propylene which has an inherent viscosity of 1.5–9, a major melting point between about 135°–155° C., exhibits no yield point, has a tensile set not exceeding 150% and contains 10–80% by weight of a diethyl ether-soluble fraction which has an inherent viscosity exceeding 1.50, said diethyl ether-soluble fraction having an isotactic crystalline content of about 0.5% to about 5% by weight and exhibiting birefringence when a film formed from said fraction is viewed under crossed Nicol prisms in a polarizing microscope at about 25° C.

7. A polymer consisting essentially of a blend of about 5–95 parts by weight of the polymer of claim 1 and about 95–5 parts by weight of highly isotactic polypropylene.

4,335,226

ADSORBENT FOR THE AFFINITY-SPECIFIC SEPARATION OF MACROMOLECULAR MATERIALS

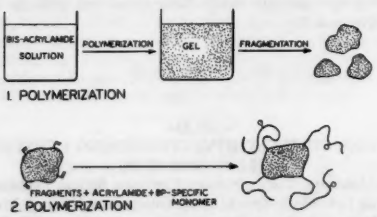
Werner Müller, Bielefeld and Hans Bünemann, Steinhagen, both of Fed. Rep. of Germany, assignors to Boehringer, Mannheim-Waldhof, Fed. Rep. of Germany

Filed 1978, Ser. No. 880,914

Claims priority, application Fed. Rep. of Germany, 1977, 2709094

Int. Cl.[3] C08F *279/00*

U.S. Cl. 525—281 13 Claims



1. Adsorbent for the affinity-specific separation of nucleic acids, comprising a polymeric carrier material onto which an affine residue group, consisting of a base and/or structure specific complex former for nucleic acids, is covalently bound.

13. Adsorbent as claimed in claim 1 wherein the affine residue group carrying a free double bond is covalently bound to the polymeric carrier material in the presence of acrylamide by copolymerization via the free double bond of the poly-bisacrylamide.

4,335,227

RUBBER COMPOSITIONS AND METHOD OF VULCANIZING SAME IN ULTRAHIGH-FREQUENCY FIELD

Ruediger F. Bender, Marl, Fed. Rep. of Germany, and Gerardus J. van Veersen, Gouda, Netherlands, assignors to Emery Industries, Inc., Cincinnati, Ohio

Filed 1980, Ser. No. 172,349

Claims priority, application Netherlands, 1979, 7905944

Int. Cl.[3] C08J *3/28*

U.S. Cl. 525—333 13 Claims

1. A rubber composition capable of being vulcanized in an ultrahigh-frequency field comprising a non-polar synthetic rubber selected from the group consisting of styrene-butadiene rubber and polyolefin rubber, conventional vulcanizing agents and additives and 0.1 to 100 phr of an organic nitrile selected from heptyl cyanide, octyl cyanide, pelargonic nitrile, 2-phenylpropyl nitrile, naphthonitrile, stearyl nitrile, adipic dinitrile, azelaic dinitrile, and nitriles of monomer and polymer fatty acids.

4,335,228

ISOCYANATE BLOCKED IMIDAZOLES AND IMIDAZOLINES FOR EPOXY POWDER COATING

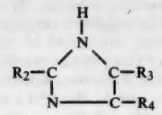
Burton D. Beitchman, Springfield, and Philip J. Zaluska, Schnecksville, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed 1978, Ser. No. 881,339

Int. Cl.[3] C08G *18/58, 59/40*

U.S. Cl. 525—528 16 Claims

1. In a process for curing a finely divided 1-2 epoxy resin having a lower softening point of not less than 40° C. by heating said epoxy resin to an elevated temperature in the presence of a catalyst, the improvement which comprises heating said epoxy resin in the presence of a blocked adduct formed by reacting a polyisocyanate with a secondary amine represented by the formula:



wherein

R_2 is hydrogen, hydrocarbyl, or inertly-substituted hydrocarbyl; and

R_3 and R_4 are each independently hydrogen, hydrocarbyl or inertly-substituted hydrocarbyl provided that R_3 and R_4 are not fused into an aromatic ring.

4,335,229

PROCESS FOR POLYMERIZING AN α-OLEFIN

Hisaya Sakurai; Yoshihiko Katayama; Tadashi Ikegami, and Masayasu Furusato, all of Kurashiki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed 1980, Ser. No. 177,546

Claims priority, application Japan, 1979, 54-123015; 1979, 54-124912

Int. Cl.[3] C08F *4/64, 10/00*

U.S. Cl. 526—122 40 Claims

1. A process for polymerizing an α-olefin comprising contacting the olefin in liquid phase at a temperature of about 120° to 320° C. with a catalyst comprising a component (A) and an organometal component (B), the component (A) being produced by reacting a hydrocarbon-soluble organomagnesium component (i) of the formula,

$$M_\alpha MgR_p^1R_q^2X_r^1X_s^2D_t$$

wherein

α, p, q, r and s each independently is 0 or a number greater than 0,

t is about 0.05 to about 10,

$p+q+r+s=m\alpha+2$,

$0 \leqq (r+s)/(\alpha+\beta) < 2$,

m is the valence of M,

M is a metal of the 1st to 3rd groups of the Periodic Table,

R^1 and R^2 each independently is a hydrocarbon group having 1 to 20 carbon atoms,

X^1 and X^2 each independently is a hydrogen atom, a halogen atom or an organic electronegative group containing 0, N or S,

D is an electron donor,

with (ii) a halide boron, silicon, germanium, tin, phosphorus, antimony, bismuth or zinc, and contacting the product of (i)+(ii) in an inert reaction solvent with (iii) a compound of tetravalent titanium and/or a compound of pentavalent or tetravalent vanadium at a concentration of titanium plus vanadium of at most about 2 mols per liter of the inert reaction solvent, the atomic ratio of Mg/(Ti+V) in (A) being about 3 to about 500.

4,335,230

NOVEL COMPOSITIONS COMPRISING ASYMMETRICAL PEROXYDICARBONATES AND METHODS FOR THEIR USE

James R. Kolczynski, Clarence Center, and Gerald A. Schultz, Lockport, both of N.Y., assignors to Akzona Incorporated, Asheville, N.C.

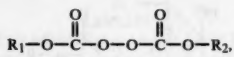
Division of Ser. No. 107,999, Dec. 26, 1979, Pat. No. 4,269,726. This application 1980, Ser. No. 212,941

Int. Cl.[3] C08F *4/38*

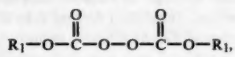
U.S. Cl. 526—228 4 Claims

1. A method for polymerizing ethylenically unsaturated monomers, or a mixture of said monomers, comprising contacting said monomers or mixture under free-radical initiating conditions with an effective amount of a composition compris-

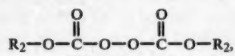
ing from about 25 to about 70 molar percent of an asymmetrical peroxydicarbonate of the formula



from about 15 to about 45 molar percent of a first symmetrical peroxydicarbonate of the formula



and from about 15 to about 45 molar percent of a second symmetrical peroxydicarbonate of the formula



wherein R_1 is isopropyl and R_2 is sec-butyl.

4,335,231

SULFUR CURABLE MILLABLE POLYURETHANE GUM

Ajaib Singh, Shelton, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Filed 1981, Ser. No. 251,007
Int. Cl.³ C08G *18/67*
U.S. Cl. 528—49 **8 Claims**

1. A sulfur curable polyurethane millable elastomeric gum comprising a reaction product of

(a) a polyester or polyether glycol having a melting point not greater than 75° C.

(b) a diisocyanate

(c) a diamine

(d) an unsaturated glycol selected from glyceryl-alpha-allyl ether, monoallyl ether of trimethylolpropane, 1,1-dihydroxymethylcyclohex-3-ene and 1,2-dihydroxymethylcyclohex-4-ene.

(e) optionally a monohydric alcohol having 2 to 20 carbon atoms.

(f) a catalyst effective to accelerate the reaction between (a) (b) and (c) wherein the equivalent ratio of (b) to combined (a), (c), (d) and (e) is from 0.9 to 1.2, the equivalent ratio of (c) to (a) is from 0.05 to 0.4, the equivalent ratio of (d) to (a) is from 0.2 to 1.0 and the equivalent ratio of (e) to (a) is from 0–0.2, and (f) is present in an effective amount.

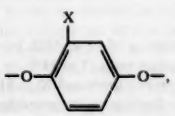
4,335,232

OPTICALLY ANISOTROPIC MELT FORMING POLYESTERS

Robert S. Irwin, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

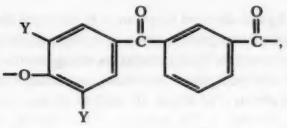
Filed 1981, Ser. No. 281,200
Int. Cl.³ C08G *63/02, 63/18*
U.S. Cl. 528—128 **9 Claims**

1. Fiber-forming melt-spinnable copolyesters that exhibit optical anisotropy in the melt consisting essentially of Units I, II, IIIA or IIIB having the structural formulas:

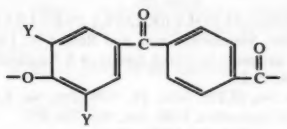
 I

-continued

II

 IIIA

or

 IIIB

where X is selected from the group consisting of hydrogen, halo or lower alkyl, Y is selected from the group consisting of hydrogen, chloro- and methyl, and wherein said polyesters comprise from about 25 to 45 mole % of Unit I, from about 25 to 45 mole % of Unit II and from about 10 to 50 mole % of Unit IIIA or IIIB, the number of dioxy units in the polyester being substantially equal to the number of dicarbonyl units.

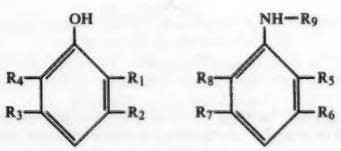
4,335,233

POLYPHENYLENE ETHER COPOLYMERS

Akiyoshi Somemiya, Akashi; Shunitsu Miyashita, and Masaaki Azuma, both of Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed 1981, Ser. No. 249,996
Claims priority, application Japan, 1980, 55/42171
Int. Cl.³ C08G *65/44*
U.S. Cl. 528—211 **5 Claims**

1. A polyphenylene ether copolymer produced by oxidative coupling of 60 to 99.9 mol % of a phenol represented by formula (1) hereinbelow, and 0.1 to 40 mol % of an aniline represented by formula (2) hereinbelow:



(1) (2)

wherein R_1 to R_8 each represents hydrogen, a hydrocarbon group or a substituted hydrocarbon group, and R_9 represents a hydrocarbon or substituted hydrocarbon group.

4,335,234

USE OF MANGANESE CHELATE TO OXIDATIVELY COUPLE PHENOLIC COMPOUND IN A SELF-PRECIPITATING SYSTEM

Walter K. Olander, Mt. Vernon, Ind., and Otto S. Zamek, Schenectady, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed 1979, Ser. No. 89,999
Int. Cl.³ C08G *65/44*
U.S. Cl. 528—214 **17 Claims**

1. In a process for the preparation of a polyphenylene ether resin which comprises the steps of

oxidatively coupling a phenolic monomer to form a polyphenylene oxide in the presence of a self-precipitating solvent comprising an aromatic hydrocarbon and an alcohol and a manganese chelate complex of the formula

$(L)_xMn$

wherein L is a ligand derived from an ω-hydroxyoxime, Mn is the transition metal manganese and x is at least equal to about 0.5, the improvement which comprises using as the alcohol component of said solvent a substantially water-immiscible alkanol of from about 4 to about 10 carbon atoms.

4,335,235

CRYSTALLINE CO-POLYBENZYLS PREPARATION

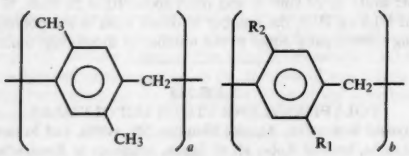
John E. Chandler, Stamford, Conn., and Robert W. Lenz, Amherst, Mass., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 25,225, Mar. 29, 1979, Pat. No. 4,255,562. This application 1980, Ser. No. 198,402

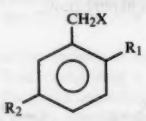
Int. Cl.³ C08G *61/02*

U.S. Cl. 528—397 **1 Claim**

1. A process of preparing crystalline polybenzyls represented by the structural formula:



wherein R_1 and R_2 are the same or different C_1–C_6 alkyl groups, when one of R_1 or R_2 is methyl the other of R_1 and R_2 is a C_2–C_6 alkyl group, a is 98.9% to about 82 mol percent, b is 1.1 to about 18 mol percent, comprising copolymerizing 2,5-dimethylbenzyl halide with a benzyl halide represented by the structural formula:



wherein R_1 and R_2 are as above and X is a halogen atom, in the presence of a catalyst comprising an alkylaluminum compound and a transition metal halide selected from the group consisting of titanium halides and oxyhalides and vanadium halides and oxyhalides, the molar ratio of alkylaluminum compound to transition metal halide not exceeding 1.

4,335,236

α-D-GALACTURONIDE DERIVATIVES

Shinji Tsuyumu, and Keiichi Ota, both of Shizuoka, Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Japan

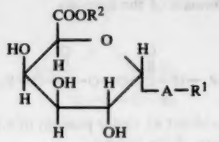
PCT No. PCT/JP79/00155, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00082, PCT Pub. Date 1980 PCT Filed 1979, Ser. No. 192,513

Claims priority, application Japan, 1978, 53/74093; 1978, 53/74094; 1978, 53/86071; 1978, 53/86072

Int. Cl.³ C07H *15/04, 5/10*

U.S. Cl. 536—18.2 **1 Claim**

1. An α-D-galacturonide derivative represented by the formula



wherein R^1 is alkyl having 1 to 8 carbon atoms, alkenyl having 2 to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms, phenyl, P-nitrophenyl, O-nitrophenyl, naphthyl, furyl, thienyl, pyrol, pyridyl, α-pyranyl and 4-methyl-umbellifenyl, R^2 is a hydrogen atom or methyl, A is an oxygen atom or sulfur atom with the proviso that when R^1 is alkyl having 1 to 8 carbon atoms, A is a sulfur atom, and the hydroxyl attached to the carbon atom at the 4-position of the galacturonide skeleton and the hydrogen atom attached to the carbon atom at the 5-position may be eliminated to form a double bond between the carbon atoms at the 4- and 5-positions.

4,335,237

ADIABATIC POLYMERIZATION OF ACRYLAMIDE IN THE PRESENCE OF SODIUM SULFATE DECAHYDRATE

Edward G. Ballweber, Glenwood, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

Filed 1980, Ser. No. 173,108

Int. Cl.³ C08F *2/00, 20/56*

U.S. Cl. 526—234 **2 Claims**

1. In a process of preparing acrylamide polymers by a polymerization reaction which occurs exothermically, the improvement which comprises mixing acrylamide monomer with sodium sulfate decahydrate and effecting the polymerization reaction at a temperature such that said sodium sulfate decahydrate is heated to its melting point, the amount of sodium sulfate decahydrate being sufficient to counterbalance the major part of the exothermic heat of reaction.

4,335,238

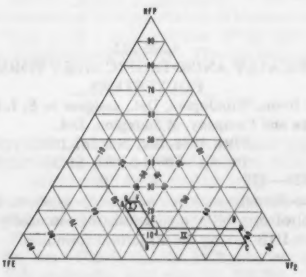
FLUOROPOLYMER HEXAFLUOROPROPENE, TETRAFLUORETHENE AND 1,1-DIFLUOROETHENE

Albert L. Moore; Clare A. Stewart, Jr., and Isadore Swerlick, all of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 193,375

Int. Cl.³ C08F *214/28*

U.S. Cl. 526—254 **3 Claims**



1. A terpolymer consisting of 12 to 48% by weight of polymerized tetrafluoroethylene units, 7 to 24% by weight of polymerized hexafluoropropylene units and 30 to 81% by weight of polymerized vinylidene fluoride units, provided that when the content of tetrafluoroethylene units is less than 42% by weight,

the content of hexafluoropropylene units is less than 13% by weight.

4,335,239

POLYRIBONUCLEOTIDES CAPABLE OF PROMOTING THE GENESIS OF LEUCOCYTES AND BLOOD PLATELETS

Mirko Beljanski, 46 Bd de Port Royal, Paris, France (75005)

Division of Ser. No. 800,435, May 25, 1977, Pat. No. 4,190,649.
This application 1979, Ser. No. 54,960
Claims priority, application France, 1976, 76 16875
Int. Cl.[3] C07H *21/02*
U.S. Cl. 536—27 2 Claims

1. A process for the preparation of single-stranded chain polyribonucleotides having 20 to 80 ribonucleotide units and in which the sequence units G-A predominate, the overall ratio of purine bases to pyrimidine bases (G+A)/(C+U) in said polyribonucleotides being between 1.0 and 2.5, comprising the steps of: extracting ribosomic ribonucleic acids from a microorganism having a ratio (G+A)/(C+U) from 1.0 to 2.5, degrading said ribonucleic acid extract by mixing it with a sodium or potassium hydroxide solution at a molar concentration of 0.1 N, incubating the resulting reaction mixture for 30 minutes at 36° C., immediately neutralizing said mixture with an equal volume of 0.1 N hydrochloric acid, dialysing the solution obtained against distilled water for about 16 hours, collecting the non-dialysable fraction, and lyophilising said fraction.

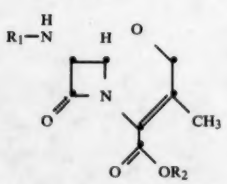
4,335,240

PROCESS FOR CYCLIZATION

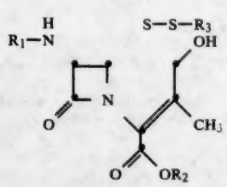
Stjepan Kukolja, Carmel, and Janice L. Pfeil, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 137,862, Apr. 7, 1980, Pat. No. 4,293,493.
This application 1981, Ser. No. 264,263
Int. Cl.[3] C07D *498/02*
U.S. Cl. 544—90 26 Claims

1. The process for preparing a 7α-acylamino-3-methyl 1-oxa β-lactam compound of the formula



which comprises reacting a compound of the formula



with a cyclization reagent selected from the group consisting of

(a) a divalent mercury compound of the formula $Hg(X)_2$ wherein X is chloro, bromo or trifluoroacetato; and

(b) a phosphine compound of the formula $(R_5)_3P$ wherein each R_5 is independently C_1 to C_7 alkyl, phenyl or phenyl substituted with C_1 to C_4 alkyl or C_1 to C_4 alkoxy, in an inert organic solvent with between about 1 to about 5 moles of said cyclizing reagent per mole of said azetidinone alcohol disulfide compound;

wherein the above formulae R_1 is an acyl group of the formula

wherein R′ is

(a) C_1–C_7 alkyl, cyanomethyl, C_1–C_6 haloalkyl, 4-protected amino-4-protected carboxybutyl; or

(b) C_1–C_6 alkoxy, phenoxy, benzyloxy or 4-methoxybenzyloxy; or

(c) the group —R″ wherein R″ is phenyl, or substituted phenyl wherein the substituents are 1 or 2 halogens, protected hydroxy, cyano, trifluoromethyl, C_1–C_4 alkyl, C_1–C_4 alkoxy, protected carboxy, protected carboxymethyl, protected hydroxymethyl or protected aminomethyl; or

(d) an arylalkyl group of the formula

wherein m is 0 or 1; or

(e) a substituted arylalkyl group of the formula

wherein R‴ is R″ as defined above, 2-thienyl, 3-thienyl, 2-furyl or 3-furyl; W is protected hydroxy, protected carboxy, protected amino, or

(f) a heteroarylmethyl group of the formula

wherein R⁗ is 2-thienyl, 3-thienyl, 2-furyl, 3-furyl, 2-thiazolyl, 5-tetrazolyl, 1-tetrazolyl;

R_2 is a carboxy protecting group and R_3 is another identically substituted substituted azetidinone alcohol moiety bonded to the opposite end of the disulfide group, or is phenyl or a mono-substituted phenyl, where the substituents are chloro, methoxy, methyl or acetoxy.

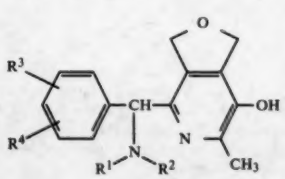
4,335,241

4-α-AMINO-ARYLMETHYL-6-METHYL-1,3-DIHYDRO-FURO[3,4-C]PYRIDIN-7-OLS

Walter Boell, Dannstadt-Schauernheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed 1981, Ser. No. 236,904
Claims priority, application Fed. Rep. of Germany, 1980, 3008522
Int. Cl.[3] C07D *491/048*
U.S. Cl. 544—127 1 Claim

1. A 4-α-amino-arylmethyl-6-methyl-1,3-dihydrofuro[3,4-c]pyridin-7-ol of the formula I



(I)

where

R^1 and R^2 together are selected from the group consisting of piperidine, 3-methylpiperidine, 4-methylpiperidine, morpholine, 3-methylmorpholine, piperazine, N-methyl-pip-

erazine, hexamethyleneimine, pyrrolidine, 3-methylpyrrolidine, 1,3-propyleneimine and ethyleneimine, and

R^3 and R^4 are hydrogen, hydroxyl, C_{1-3}-alkyl, C_{1-3}-alkoxy or halogen.

4,335,242

TRIAZINE DERIVATIVES

Hartmut Wiezer, Gersthofen, and Gerhard Pfahler, Augsburg, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

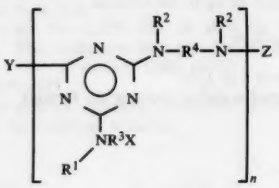
Filed 1980, Ser. No. 177,861

Claims priority, application Fed. Rep. of Germany, 1979, 2933078

Int. Cl.³ C07D *251/50, 251/70*

U.S. Cl. 544—198 **2 Claims**

1. Triazine compounds of the formula (I)

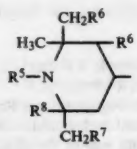


(I)

in which

n is a number of from 1 to 20, preferably 3 to 10;

R^1 means hydrogen or a group of the formula (II)



(II)

wherein

R^5 is hydrogen or C_1–C_{18}-alkyl,

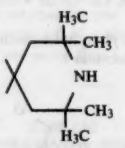
R^6 and R^7 either are identical and represent hydrogen or a C_1–C_5-alkyl group,

in which case

R^8 is a methyl group, or

R^6 is hydrogen or C_1–C_5-alkyl; and

R^7 and R^8 together with the carbon atoms, to which they are bound, form a C_5- or C_6-cycloalkyl ring or a group of the formula



R^2 is hydrogen, C_1–C_{12}-alkyl or a group of the formula (II), with the proviso that at least one of the radicals R^1 and R^2 must be a group of the formula (II);

X means a hydroxyl group or a group of the formulae $—OR^9$ or $—N(R^{10})_2$;

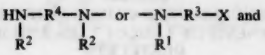
R^9 standing for a C_1–C_{18}-alkyl group and

R^{10} for a methyl or ethyl group;

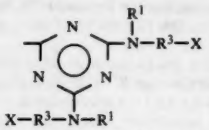
R^3 is an alkylene group with from 2 to 4 carbon atoms in the chain, and

R^4 means an alkylene group with from 2 to 18 carbon atoms, a dimethylene cyclohexane, a phenylene or a C_7–C_{13}-aralkylene group;

Y is preferably halogen or a group of the formulae



Z stands preferably for hydrogen or the group



4,335,243

OXIMES OF 11-(3-OXOOCTYL)-HEXAHYDRO-2,6-METHANO-3-BENZAZOCINES

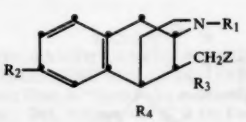
William F. Michne, Poestenkill, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 147,084, May 7, 1980, Pat. No. 4,296,238, which is a division of Ser. No. 9,594, Feb. 5, 1979, Pat. No. 4,255,579, which is a continuation-in-part of Ser. No. 877,166, Feb. 13, 1978, Pat. No. 4,180,667, which is a continuation-in-part of Ser. No. 741,227, Nov. 12, 1976, Pat. No. 4,100,164, which is a continuation-in-part of Ser. No. 695,977, Jun. 14, 1976, abandoned, which is a continuation-in-part of Ser. No. 576,313, May 12, 1976, which is a continuation-in-part of Ser. No. 471,571, May 20, 1974, Pat. No. 3,932,422. This application 1981, Ser. No. 243,031

Int. Cl.³ C07D *221/26*

U.S. Cl. 546—97 **4 Claims**

1. A compound having the formula



R_4

where R_1, R_3 and R_4 are each lower-alkyl; R_2 is hydrogen or hydroxy; and Z is the oxime or O-carboxymethyloxime (=$NOCH_2COOH$) of a compound where Z is CH_2COR_5, where R_5 is lower-alkyl; or an acid-addition salt thereof.

4,335,244

MONOLACTATE SALTS OF 4'-(9-ACRIDINYLAMINO)METHANESULFON-M-ANISIDIDE

Murray A. Kaplan, Syracuse, and Alphonse P. Granatek, Baldwinsville, both of N.Y., assignors to Bristol-Myers Company, New York, N.Y.

Continuation-in-part of Ser. No. 99,163, Nov. 30, 1979, abandoned. This application 1980, Ser. No. 150,401

Int. Cl.³ C07D *219/10*; A61K *31/47*

U.S. Cl. 546—106 **7 Claims**

1. The crystalline mono L(+)-lactate hemiacetonate of m-AMSA.

4. A stable, solid, water-soluble pharmaceutical dosage form for reconstitution with water or aqueous vehicle as a stable solution of m-AMSA, said dosage form being prepared by the steps of

(1) forming an aqueous solution of crystalline L(+)-monolactate hemiacetonate of m-AMSA, crystalline m-AMSA DL-monolactate acetone solvate containing from

about 0.6 to 0.7 moles of acetone per mole of lactate salt or crystalline m-AMSA D(−)-monolactate hemiacetonate; and

(2) lyophilizing the so-produced aqueous solution.

4,335,245

PROCESS FOR PREPARING CERTAIN PYRIDINE 2,3,6-TRIONES

William E. Long, Brentwood, England, assignor to Ciba-Geigy AG, Basel, Switzerland

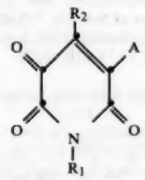
Division of Ser. No. 123,867, Feb. 22, 1980, Pat. No. 4,288,598. This application 1981, Ser. No. 238,346

Claims priority, application United Kingdom, 1979, 7910539

Int. Cl.³ C07D *213/56, 213/57*

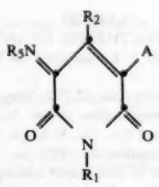
U.S. Cl. 546—288 **6 Claims**

1. A process for the preparation of a compound of the formula



(1)

which comprises hydrolysing, using aqueous acid, an azomethine compound of the formula



(7)

wherein R_5 is a N,N-dimethylaniline residue, A is cyano or carboxamide, and R_1 and R_2 are hydrogen, alkyl of 1 to 6 carbon atoms, alkyl substituted by hydroxy, halogen or alkoxy of 1 to 4 carbon atoms, phenyl or phenyl substituted by hydroxy, halogen, alkyl or alkoxy of each 1 to 4 carbon atoms.

4,335,246

SUBSTITUTED ARYLAMINE INTERMEDIATES FOR DYES

Francesco De Feo, Milan; Giovanni Burei, Seregno, and Roberto Cipolli, Novara, all of Italy, assignors to Aziende Colori Nazionali Affini ACNA S.p.A., Milan, Italy

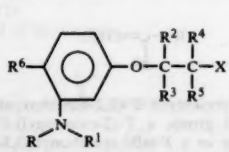
Division of Ser. No. 934,676, Aug. 18, 1978, abandoned. This application 1979, Ser. No. 78,378

Claims priority, application Italy, 1977, 26872 A/77

Int. Cl.³ C07D *213/74;* **C07C** *125/065, 143/78*

U.S. Cl. 546—309 **11 Claims**

1. A compound having the formula



wherein:

R and R^1, either like or unlike each other, may be H; or alkyl C_1–C_4;

R^2 is H; or alkyl C_1–C_{18};

R_3, R_4 and R_5 are H;

R^6 is H; halogen; alkyl C_1–C_4; or alkoxy C_1–C_4; and

X is OCOHN alkyl C_1–C_4; OCOHN halogen alkyl C_1–C_4; OCOHN phenyl optionally substituted by one or more of the following groups: halogen, alkyl C_1–C_4, alkoxyl C_1–C_4, SO_3H, COOH, SO_2NH_2, and SO_2NH acyl; or —OCON(C_1–C_4 alkyl)$_2$.

4,335,247

NOVEL NITROSOUREA DERIVATIVES AND PROCESS FOR THEIR PRODUCTION

Kichitaro Takatori, Nagoya; Takashi Yamaguchi, Urawa, and Masahiko Nagakura, Sayama, all of Japan, assignors to Kowa Co., Ltd., Nagoya, Japan

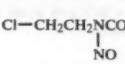
Filed 1981, Ser. No. 237,273

Claims priority, application Japan, 1980, 55-24491

Int. Cl.³ C07C *127/1*

U.S. Cl. 548—140 **2 Claims**

1. A nitrosourea derivative represented by the formula,



wherein —NHR represents a 2-(1,3,4-thiadiazolyl)amino group; an amino residue of a neutral α-amino acid, or an amino residue of a neutral α-amino acid whoe carboxyl group is amidated with 2-(1,3,4-thiadiazolyl)amine, or a pharmaceutically acceptable acid addition salt thereof.

4,335,248

FLUORINATED POLYENES

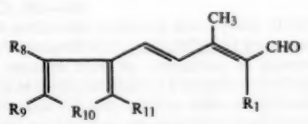
Ka-Kong Chan, Hopatcong, and Beverly A. Pawson, Verona, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 149,389, May 13, 1980, Pat. No. 4,299,995, which is a division of Ser. No. 37,803, May 10, 1979, Pat. No. 4,231,944, which is a division of Ser. No. 936,466, Aug. 24, 1978, Pat. No. 4,171,318, which is a continuation-in-part of Ser. No. 809,738, Jun. 24, 1977, Pat. No. 4,137,246, which is a continuation-in-part of Ser. No. 722,939, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 632,028, Nov. 14, 1975, abandoned. This application 1981, Ser. No. 278,224

Int. Cl.³ C07D *333/16, 307/12;* **A61K** *31/38, 31/34*

U.S. Cl. 549—78 **6 Claims**

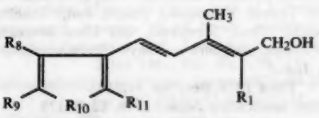
1. A compound of the formula:



XXXII

wherein R_1 is fluorine; R_8 and R_{11} each are lower alkyl; R_9 is hydrogen or lower alkyl; and R_{10} is oxygen or sulphur.

4. A compound of the formula:



XXXIII

wherein R_1 is fluorine; R_8 and R_{11} each are lower alkyl; R_9 is hydrogen or lower alkyl; R_{10} is oxygen or sulphur.

4,335,249

HERBICIDAL DIPHENYL ETHERS, SULFIDES, SULFOXIDES AND SULFONES

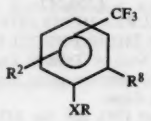
Wayne O. Johnson, Warminster, and Roy Y. Yih, Doylestown, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 610,481, Sep. 3, 1975, abandoned. This application 1976, Ser. No. 710,074

Int. Cl.³ C07C *69/76*

U.S. Cl. 560—11 **19 Claims**

1. A compound of the formula

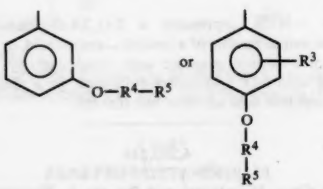


wherein

R^8 is a hydrogen atom, a halogen atom, a cyano group, a (C_1–C_4) alkyl group, a (C_1–C_4) alkoxy group, or a trifluoromethyl group,

R^2 is a hydrogen atom, a halogen atom or a cyano group

R is a group of the formula



wherein

R^3 is a hydrogen atom, a halogen atom, a (C_1–C_4) alkyl group, or a (C_1–C_4) alkoxy group,

R^4 is a divalent (C_1–C_5) alkylene group,

R^5 is a cyano group or a group of the formula —COR^6, wherein R^6 is a (C_1–C_{10}) alkoxy group, a hydroxy group or an agronomically-acceptable salt thereof, a (C_1–C_4) alkoxy (C_1–C_4) alkoxy group, an amino group, a (C_1–C_4) alkylamino group, a di(C_1–C_4) alkylamino group, an amino (C_1–C_4) alkoxy group, a (C_1–C_4) alkylamino (C_1–C_4) alkoxy group, or a di(C_1–C_4) alkylamino (C_1–C_4) alkoxy group, and

X is a sulfur atom, a sulfinyl group, or a sulfonyl group.

4,335,250

COMPOUND WITH IMMUNOPOTENTIATING ACTIVITY AND PRODUCTION AND USES THEREOF

Hamao Umezawa; Tomio Takeuchi, both of Tokyo; Takaaki Aoyagi, Fujisawa; Masaaki Ishizuka, Tokyo; Hajime Morishima, Tokyo; Takuzo Yamamoto, Tokyo; Junji Yoshizawa, Tokyo; Masaaki Hosoi, Kawasaki, and Ikuo Matsumoto, Tokyo, all of Japan, assignors to Banyu Pharmaceutical Co., Ltd., Tokyo, Japan

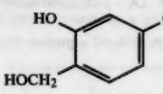
Filed 1979, Ser. No. 57,014

Claims priority, application Japan, 1978, 53/86178

Int. Cl.³ C07C *69/88*

U.S. Cl. 560—67 **7 Claims**

1. A compound of the general formula:



(I)

wherein R represents hydrogen atom or a linear or branched lower alkyl proup, and pharmaceutically acceptable salts and hydrates of the compound and pharmaceutically acceptable salts of the hydrates.

4,335,251

PHENYL-I-PROPIONIC ACID ESTERS AND PHARMACEUTICAL USE THEREOF

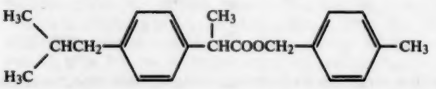
Kanji Noda, Chikushino; Akira Nakagawa; Yuji Ishikura, both of Tosu, and Hiroyuki Ide, Fukuoka, all of Japan, assignors to Hisamitsu Pharmaceutical Co. Inc., Saga, Japan

Continuation of Ser. No. 956,446, Nov. 1, 1978, abandoned, which is a continuation of Ser. No. 748,454, Dec. 8, 1976, abandoned. This application 1980, Ser. No. 175,498

Int. Cl.³ C07B *69/76*

U.S. Cl. 560—105 **6 Claims**

1. A composition of the following formula:



4,335,252

INSECTICIDAL PYRETHROID ENANTIOMER PAIR

John F. Engel, Medina, N.Y., assignor to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 42,372, May 24, 1979, Pat. No. 4,263,319, which is a continuation of Ser. No. 927,198, Jul. 24, 1978, abandoned, and Ser. No. 870,973, Jan. 20, 1978, abandoned. This application 1980, Ser. No. 221,581

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ A01N *53/00*; C07C *69/743*

U.S. Cl. 560—124 **1 Claim**

1. An insecticidal enantiomer pair consisting essentially of a substantially equimolar mixture of S-4-phenyl-2-indanyl 1R,cis-3-(2-chloro-3,3,3-trifluoro-1-propenyl) -2,2-dimethylcyclopropanecarboxylate and R-4-phenyl-2-indanyl 1S,cis-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate.

4,335,253

PREPARATION OF DIHALOVINYL COMPOUNDS

Petrus A. Kramer, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

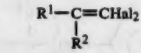
Filed 1981, Ser. No. 266,578

Claims priority, application United Kingdom, 1980, 8017697

Int. Cl.³ C07C *67/317, 45/65, 41/48*

U.S. Cl. 560—124 **9 Claims**

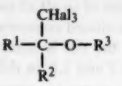
1. A process for the preparation of a 2,2-dihalovinyl compound of the formula:



(I)

wherein R^1 represents a 2'-(2,2-dimethoxyethyl)-3',3'-dimethylcyclopropyl group, a 2'-(2-oxopropyl)-3',3'-dimethylcyclopropyl group or a 2'-(alkoxycarbonyl)-3,3-dimethylcyclopropyl group in which the alkoxy group contains from 1 to 10 carbon atoms; R^2 represents a hydrogen atom; and each Hal is

selected from fluorine, chlorine or bromine, which process comprises reacting a trihalo compound of the formula:



(II)

wherein R^1 and R^2 have the same meaning as in formula I, at least one Hal is bromine, the other Hal's having the same meaning as in formula I, and R^3 is hydrogen, or

wherein M is an alkali metal atom, with $PHal_3$, wherein Hal is selected from bromide and chlorine.

4,335,254

POLYMERIZABLE ACRYLOYLOXYARYLENESULFONAMIDES

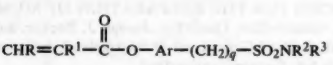
John C. Wilson, and Paul D. Yacobucci, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 22,406, Mar. 21, 1979, Pat. No. 4,289,865. This application 1981, Ser. No. 268,547

Int. Cl.³ C07C *69/54, 69/653*

U.S. Cl. 560—138 **3 Claims**

1. A compound having the formula:



wherein:

R and R^1 are independently hydrogen, halide, or alkyl having 1 to 4 carbon atoms;

R^2 and R^3 are independently hydrogen, alkyl having 1 to 10 carbon atoms, cycloalkyl having 4 to 10 carbon atoms, aryl having 6 to 18 carbon atoms or aralkyl having 7 to 20 carbon atoms;

q is 0 or 1; and

Ar is arylene having 6 to 18 carbon atoms wherein no more than one of R^2 and R^3 is hydrogen.

4,335,255

ALKYL PERFLUORO (2-METHYL-5-OXO-3-OXAHEXANOATE)

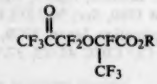
Carl G. Krespan, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 136,991

Int. Cl.³ C07C *69/708, 69/716, 121/34*

U.S. Cl. 560—174 **15 Claims**

1. Compound of the formula



wherein R is alkyl of 1 to 8 carbon atoms.

4,335,256

PROCESS FOR MANUFACTURING d,l-β-BENZOYLAMINO-ISOBUTYRIC ACID

Paolo de Witt, and Enrico Diamanti, both of Rome, Italy, assignors to Sigma-Tau Industrie Farmaceutiche Riunite S.p.A., Rome, Italy

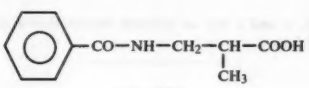
Filed 1978, Ser. No. 961,102

Claims priority, application Italy, 1977, 52004 A/77

Int. Cl.³ C07C *101/12*

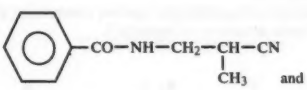
U.S. Cl. 562—450 **7 Claims**

1. In a process for preparing d,l-β-benzoylamino-isobutyric acid, having the formula



which comprises:

(a) reacting benzamide with methacrylonitrile in the presence of an alkaline catalyst in an anhydrous solvent medium, at a temperature of about 80° to 100° C., thus obtaining d,l-β-benzoylamino-isobutyronitrile, having the formula:



and

(b) hydrolyzing said d,l-β-benzoylamino-isobutyronitrile to d,l-β-benzoylamino-isobutyric acid in an alkaline medium in the presence of a lower alkanol having from 1 to 4 carbon atoms at a temperature of about 40° to 60° C., the improvement wherein the reaction of said benzamide with methacrylonitrile is carried out in the presence of an alkaline catalyst which is a quaternary ammonium base selected from the group consisting of benzyl-trimethylammonium hydroxide, benzyl-triethyl-ammonium hydroxide, tetrabutylammonium hydroxide and mixtures thereof.

4,335,257

PREPARATION OF THE CALCIUM SALT OF ALPHA-HYDROXY-GAMMA-METHYLMERCAPTOBUTYRIC ACID

Earl W. Cummins; Steven I. Gleich, and Robert M. Vigilant, all of Wilmington, Del., assignors to E. I. Du Pont De Nemours and Company, Wilmington, Del.

Filed 1980, Ser. No. 184,210

Int. Cl.³ C07C *149/20*

U.S. Cl. 562—581 **14 Claims**

1. A process for preparing the calcium salt of α-hydroxy-γ-methylmercaptobutyric acid (MHBA) which comprises forming a reaction mass by contacting an aqueous solution of MHBA in the liquid phase at a temperature of about 25° to 120° C. with solid calcium oxide or calcium hydroxide, mixing the resulting reaction mass at a temperature of about 45° to 130° C., and recovering therefrom the product calcium salt of MHBA.

4,335,258

PROCESS FOR PRODUCING METHACRYLIC ACID

Takeru Onoda; Masayuki Otake, both of Yokohama, and Jutaro Yamaguchi, Yamato, all of Japan, assignors to Mitsubichi Chemical Industries, Ltd., Los Angeles, Calif.

Filed 1980, Ser. No. 109,219

Claims priority, application Japan, 1979, 54-3488

Int. Cl.³ C07C *51/377, 57/05*

U.S. Cl. 562—599 **3 Claims**

1. A process for producing methacrylic acid which comprises oxidatively dehydrogenating isobutyric acid in vapor

phase in the presence of a lithium salt of a heteropolyacid having the general formula:

$$H_{3+x-z}Li_zMo_{12-x-y}W_yV_xPO_{40}$$

wherein
X is 0, 1, 2 or 3;
y is 0, 1, 2 or 3;
$0 \leqq x+y \leqq 4$; and
$0.05 \leqq z \leqq 3$;
or a reduced form of the heteropolyacid having the general formula:

$$H_{3+x-z+n}Li_zMo_{12-x-y}W_yV_xPO_{40}$$

wherein x, y and z are as defined herein above and n is an integer of 1 to 8.

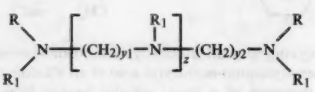
4,335,259

QUATERNIZED POLYAMINES

Hans-Peter Baumann, Ettingen, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

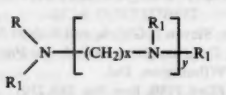
Continuation-in-part of Ser. No. 50,881, Jun. 21, 1979, Pat. No. 4,297,296. This application 1981, Ser. No. 222,483
Claims priority, application Switzerland, 1978, 6933/78
Int. Cl.³ C07C *87/30*
U.S. Cl. 564—290 **11 Claims**

1. A mixture of quaternized amines comprising at least one amine of basic structure of formula I,



I

in which
each R, independently, is (C_{10-22})alkyl, (C_{10-22})alkenyl, phenyl(C_{1-3})alkyl or naphthyl(C_{1-3})alkyl,
each R_1, independently, is phenyl(C_{1-3})alkyl or naphthyl (C_{1-3})alkyl,
z is 1 to 5,
each y_1, independently, is an integer from 2 to 8,
y_2 is an integer from 2 to 8, with the proviso that when $z=1$ $y_1 \neq y_2$ and when $z>1$ and the y_1's are the same $y_2 \neq y_1$
and at least one amine of basic structure of formula I_x,



I_x

in which
R and R_1, respectively, are as defined in formula I, above,
x is 2 to 8 and
y is 1 to 5,
such quaternized amine mixture having an average of 0.5 to 2.0 nitrogen atoms in each amine quaternized with (C_{1-6})alkyl radicals.

4,335,260

PROCESS FOR THE PREPARATION OF N-DI-N-PROPYL-2,6-DINITRO-4-TRIFLUOROMETHYLANILINE HAVING A LOW CONTENT OF NITROSAMINES

Mario Bornengo, Massa, and Sergio Bacciarelli, Orzonovo, both of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed 1981, Ser. No. 263,508
Claims priority, application Italy, 1980, 22073 A/80
Int. Cl.³ C07C *85/04*
U.S. Cl. 564—406 **1 Claim**

1. Process for producing herbicidal N-di-n-propyl-2,6-dinitro-4-trifluoromethylaniline containing nitrosamines in an amount lower than 1 ppm, characterized in that 4-trifluoromethyl-2,6-dinitro-chlorobenzene is reacted with di-n-propylamine in the presence of an alkali metal hydroxide or an alkali metal carbonate introduced contemporaneously with the di-n-propylamine so that the pH is maintained constant at a value comprised between 7 and 7.5; in that the temperature is regulated in such a way so as not to exceed 70° C.; and in that the reaction is carried out with at least 50% by weight of water present in the reaction mass.

4,335,261

PROCESS FOR PURIFYING MACROCYCLIC KETONES

Yoichiro Ueda, Ohimachi, Japan, assignor to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed 1981, Ser. No. 274,682
Claims priority, application Japan, 1980, 55-98258
Int. Cl.³ C07C *45/83*
U.S. Cl. 568—366 **9 Claims**

1. In a process for preparing a macrocyclic ketone having from 15 to 17 carbon atoms in the ring by effecting base-catalyzed intramolecular cyclization of an α,ω-long chain aliphatic dicarboxylic acid ester according to the Dieckmann condensation reaction to form a macrocyclic keto carboxylic acid ester, followed by hydrolysis and decarboxylation to obtain a crude macrocyclic ketone and then by purification of said crude macrocyclic ketone, the improvement which comprises: the purification treatment comprises injecting open steam into the crude macrocyclic ketone, in the presence of a non-volatile base, to effect steam distillation and recovering the purified macrocyclic ketone as the distillate.

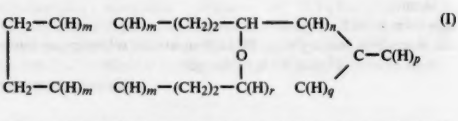
4,335,262

PROCESS FOR THE PREPARATION OF MUSCONE

Karl H. Schulte-Elte, Onex/Ge; Joseph J. Becker, and Walter Schenk, both of Geneva, all of Switzerland, assignors to Firmenich SA, Geneva, Switzerland

Filed 1980, Ser. No. 183,722
Claims priority, application Switzerland, 1979, 8293/79
Int. Cl.³ C07C *45/57*
U.S. Cl. 568—361 **1 Claim**

1. Process for the preparation of muscone which comprises treating a bicyclic compound having the formula:



(I)

wherein the dotted lines stand for a single or a double bond, and wherein
m stands for the integer 1 or 2,
n=1 and p=3 or n=2 and p=2, and
r=1 and q=2 or r=0 and q=1,
with hydrogen in an inert organic solvent and in the presence of platinum or palladium metal deposited on charcoal at a temperature of between about 100° and about 300° C.

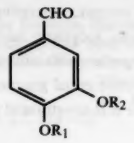
4,335,263

PROCESS FOR PREPARING AROMATIC ALDEHYDES

Masayoshi Minai, Moriyama, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

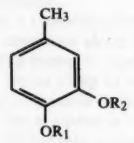
Filed 1980, Ser. No. 218,135
Claims priority, application Japan, 1979, 54/167013
Int. Cl.³ C07C *45/43, 37/01*
U.S. Cl. 568—437 **15 Claims**

1. A process for preparing an aromatic aldehyde represented by the following general formula:

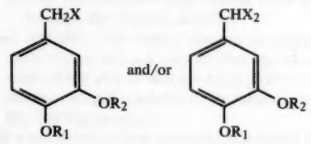


wherein R_1 and R_2 each represents a hydrogen atom or a lower alkyl group or R_1 and R_2 may jointly form an alkylene group, provided that R_1 and R_2 do not represent a hydrogen atom at the same time,

which comprises oxidizing 2-hydroxy-4-methylacetophenone and/or 2-hydroxy-5-methylacetophenone with hydrogen peroxide and an alkali in a heterogeneous solvent system of a water-insoluble or slightly water-soluble organic solvent and water in the presence of a catalyst to obtain 4-methylcatechol, condensing the 4-methyl-catechol with an alkylating agent to obtain a methylbenzene derivative represented by the following general formula:



wherein R_1 and R_2 are the same as defined above, halogenating the methylbenzene derivative to obtain a halide compound represented by the following general formula:



wherein R_1 and R_2 are the same as defined above, and X represents a halogen atom, and

oxidizing and/or hydrolyzing the halide compound.

4,335,264

HIGH YIELD, LOW BYPRODUCT α, β-UNSATURATED ALDEHYDES FROM OLEFINS

Paul C. Yates, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed 1976, Ser. No. 703,285

Int. Cl.[3] C07C *45/34*

U.S. Cl. 568—479 **32 Claims**

1. The vapor phase selective oxidation process for the preparation of an α,β-unsaturated aldehyde and less than 2% α,β-unsaturated acids based on the unsaturated aldehyde which comprises contacting a reactant gas containing 1 to 30 volume percent of an olefin of 3 to 5 carbon atoms, from 0 to 40 volume percent of H_2O, from 0.25 to 2 times the concentration of olefin but within the range of 2 to 15 volume percent of oxygen and 15 to 97 volume percent of one or more inert gases selected from the group consisting of carbon dioxide, carbon monoxide, nitrogen and hydrogen with a catalyst of the general formula:

$$R_aCo_bFe_cNi_dQ_eM_fY_gZ_hO_x$$

where

R=Bi or Sb

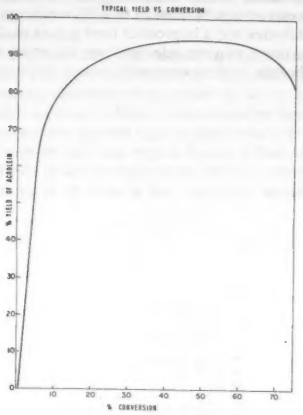
Q=Mo, W, V or mixtures thereof

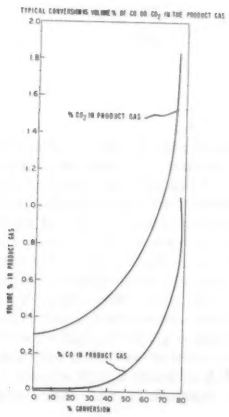
M=P, Si or Te

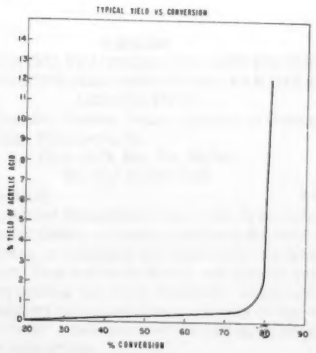
Y=alkali or alkaline earth metals

Z=Ag or Tl

and a is 0.6 to 6.0; b is 0 to 3.9; c is 0 to 10.2; d is 0 to 10.2; e is







12; f is 0 to 2.0; g is 0 to 2.0; h is 0 to 0.20 and x is as required to satisfy valence of the other elements with the proviso that

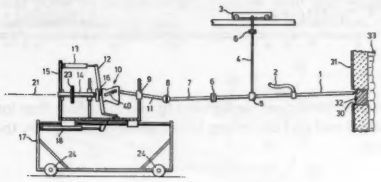
$\Sigma b+c+d$ must be >6, and
$\Sigma b+d$ must be >5

for a contact time and at a temperature of from 300° to 500° C. and pressure of from atmosphere to 10 atmospheres to obtain a gaseous product stream comprising an α,β-unsaturated aldehyde at a conversion of from 25 to 80%, a mixture of acids and other aldehydes and a byproduct inert gas or moderator comprising mixtures of gases selected from the group consisting of carbon dioxide, carbon monoxide, water, hydrogen, nitrogen, unreacted olefin with a C_1 to C_4 saturated hydrocarbon impurity mixture and at least 1% by volume oxygen, separating the byproduct gas from the product stream, recycling said byproduct gas to contact the catalyst together with additional propylene, oxygen and water to achieve the initial gas composition and separating and recovering the α,β-unsaturated aldehyde.

4,335,265
ROBOT TAPPING ELECTRODE FOR ELECTRIC ARC FURNACES

Serge Roberge, Shawinigan Nord, and Jacques Normand, Shawinigan Sud, both of Canada, assignors to Gulf Canada Limited, Toronto, Canada

Filed 1980, Ser. No. 216,886
Int. Cl.³ C21B *11/10, 13/12*
U.S. Cl. 373—83 **4 Claims**



1. An apparatus for controlling movement of a tapping electrode to tap the molten charge from an electric furnace, comprising:

(a) a rotatable drive means, adapted to be moved in both directions along its axis of rotation,

(b) a means to control the position of said rotatable drive means along its axis of rotation,

(c) a rotatable shaft retained in a non-rotating bearing member at a point in its length between its ends in such manner

(i) that said rotatable shaft can rotate about its longitudinal axis and said longitudinal axis can pivot at said bearing member to any position in a cone coaxial with the axis of rotation of said rotatable drive means, the cone tip angle being no greater than substantially 45°, and

(ii) that said rotatable shaft cannot move along its own axis through the bearing member,

said rotatable shaft being adapted to engage said rotatable drive means in such manner that the amount of displacement of the axis of said rotatable shaft is controlled by the distance of said rotatable drive means from said non-rotating bearing member,

(d) a supporting shaft pivotally supported between its ends and attached to said rotatable shaft by a coupling means permitting both rotation of said rotatable shaft and angular displacement of the two shafts relative to each other, and

(e) an elongated electrode fixed to said supporting shaft near its end opposite to the end at which said rotatable shaft is coupled.

4,335,266
METHODS FOR FORMING THIN-FILM HETEROJUNCTION SOLAR CELLS FROM I-III-VI_2 CHALCOPYRITE COMPOUNDS, AND SOLAR CELLS PRODUCED THEREBY

Reid A. Mickelsen, Bellevue, and Wen S. Chen, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

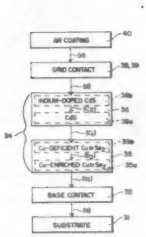
Filed 1980, Ser. No. 221,761
Int. Cl.³ H01L *31/06, 31/18*
U.S. Cl. 136—260 **147 Claims**

1. In a method of forming a photovoltaic light-to-electrical energy transducer of the type including a thin-film A-B-type heterojunction where "A" and "B" are selected from the group of semiconductor materials consisting of:

A	and	B
(i) a p-type ternary material	and	an n-type material;
(ii) an n-type ternary material	and	a p-type material;
(iii) an n-type material	and	a p-type ternary material;
(iv) a p-type material	and	an n-type ternary material;

and wherein the transducer includes a substrate, a first contact deposited on the substrate, a first semiconductor layer formed of A-type material deposited on the first contact, a second semiconductor layer formed of B-type material deposited on the first semiconductor layer and defining therewith the thin-film A-B-type heterojunction, and a second contact deposited on the second semiconductor layer, the improvement comprising a method wherein:

(a) the one of the first and second semiconductor layers formed of a ternary semiconductor material is formed by simultaneous elemental evaporation of the ternary semiconductor material to form a semiconductor layer having two composition graded regions sequentially formed one upon the other with one region having a first preselected ratio of two of the elements in the ternary semiconductor material so as to form a low resistivity semiconductor



region and the other of the regions having a different preselected ratio of the same two elements so as to form a high resistivity transient semiconductor region and with the two regions defining a transient homojunction; and,

(b) the other of the first and second semiconductor layers is formed by deposition of a semiconductor material in face-to-face contact with respect to the high resistivity transient semiconductor region of the transient homojunction so as to permit the high resistivity transient semiconductor region to evolve through elemental interdiffusion into a region of relatively high resistivity semiconductor material of the same type as the low resistivity region formed in step (a) to thereby form a thin-film A-B-type heterojunction photovoltaic light-to-electrical energy transducer.

15. The product produced by the method set forth in claims **1**, **2**, **3**, **4** or **5**.

4,335,267
GAS INSULATED TRANSMISSION LINE INCLUDING PROVISIONS FOR MINIMIZING PARTICLE GENERATION

Melvyn D. Hopkins, Grafton, Mass., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

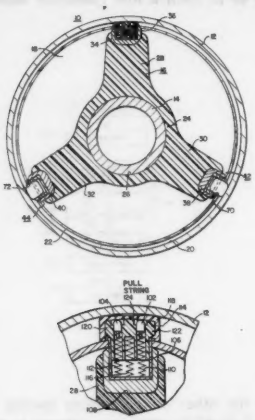
Filed 1979, Ser. No. 88,740
Int. Cl.³ H01B *9/06*
U.S. Cl. 174—14 R **9 Claims**

1. A gas-insulated transmission line of the type including a cylindrical outer sheath, an inner conductor disposed within said outer sheath, an insulating gas electrically insulating said inner conductor from said outer sheath, and support means for insulatably supporting said inner conductor within said outer sheath, said support means including a plurality of legs extending from said inner conductor towards said outer sheath, the improvement comprising:

at least one of said legs having an opening therein adjacent said outer sheath; and

a wheel assembly disposed within said leg opening, said wheel assembly including a rotatable wheel extending outwardly of said leg opening and contacting said outer sheath, said wheel being rotatable only in the direction of said outer sheath elongation, said wheel assembly comprising an insert disposed in said leg opening and fixedly secured to said leg, a wheel holder cup disposed within said insert and secured thereto, said wheel, having a centrally disposed opening therethrough, disposed within said wheel holder cup, and a wheel axle extending through said wheel central opening and being held by said wheel holder cup.

7. A gas-insulated transmission line of the type including a cylindrical outer sheath, an inner conductor disposed within



said outer sheath, an insulating gas electrically insulating said inner conductor from said outer sheath, support means for insulatably supporting said inner conductor within said outer sheath, a particle trapping ring disposed adjacent said supporting means and spaced-apart from said outer sheath, and a contact assembly including a spring-biased contact button disposed within said support means and extending outwardly to said outer sheath, said contact button providing an electrical connection between said outer sheath and said particle trapping ring, the improvement comprising:

a non-metallic contact button cover longitudinally-removably secured to said contact assembly; and

means for longitudinally removing said contact button cover from said contact assembly.

4,335,268

PARTICLE TRAP WITH DIELECTRIC BARRIER FOR USE IN GAS INSULATED TRANSMISSION LINES

Steinar J. Dale, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 206,753

Int. Cl.³ H01B *9/06, 9/04;* **H02G** *5/06*

U.S. Cl. 174—14 R **9 Claims**

1. A gas insulated transmission line comprising:

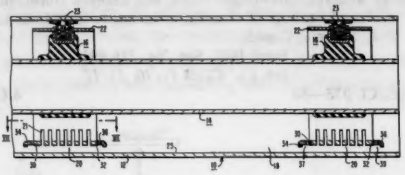
a cylindrical outer sheath at low electric potential;

an inner conductor at high electric potential with respect to said outer sheath disposed within said outer sheath;

an insulating gas electrically insulating said inner conductor from said outer sheath;

means for insulatably supporting said inner conductor within said outer sheath;

an electrode disposed within, and electrically connected to, said outer sheath, said electrode being spaced-apart from said outer sheath to form a low field region therebetween, said electrode having first and second longitudinal ends; and



a first dielectric member secured to said electrode first longitudinal end and extending longitudinally outwardly therefrom.

4,335,269

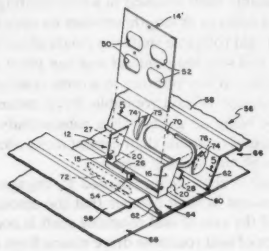
ISOLATOR DEVICE AND WIRE DISTRIBUTING SYSTEM UTILIZING THE SAME

Paul L. Haşkins, Aliquippa, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa.

Filed 1980, Ser. No. 188,852

Int. Cl.³ H02G *3/28*

U.S. Cl. 174—48 **14 Claims**



1. An insert for use in an electrical wiring distributing system, said insert including an isolator device having a generally U-shaped configuration including

spaced-apart sidewalls having corresponding forward edges, rear edges, lower edges and upper edges;

a connecting front wall extending between said forward edges;

tabs, one on each of said rear edges, said tabs extending in opposite directions from and generally normal to said sidewalls;

abutments, one on each of said sidewalls and spaced from said front wall; and

a partition plate having a portion captively retained between said front wall and said abutments, and a portion extending upwardly beyond said upper edges.

4,335,270

SWITCH HOUSING INCORPORATING FLEXIBLY ATTACHED MOUNTING PLATE

Thomas J. Holce, Portland, and Charles M. Huckins, Tigard, both of Oreg., assignors to Sentrol, Inc., Portland, Oreg.

Filed 1980, Ser. No. 197,522

Int. Cl.³ H05K *5/00*

U.S. Cl. 174—52 R **5 Claims**

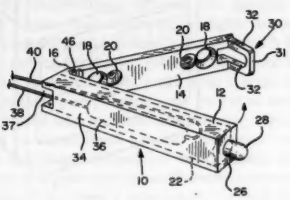
5. A protective housing for a fragile electrical component, comprising:

(a) an elongate protective body, said body having an exterior surface, an open end, and a closed end and including elongate generally tubular cavity means extending along

the length thereof from said open end toward said closed end, for receiving said fragile electrical component;

(b) an elongate generally planar mounting plate including aperture means for receiving fasteners for attaching said mounting plate to a surface;

(c) a flexible member interconnecting said open end of said elongate protective body with an end of said mounting plate and permitting a portion of said exterior surface of said body to be positioned parallel with and in contact with said mounting plate;



(d) latch means associated with said closed end for retaining said protective body in a position wherein said portion of said exterior surface is located parallel with and closely alongside said mounting plate and wherein said tubular cavity means is oriented parallel to said mounting plate; and

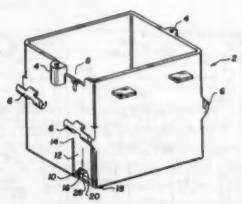
(e) means defining a relief opening in said body located adjacent to said open end for permitting electrical conductors to extend from said electrical component in a direction perpendicular to the length of said generally tubular cavity means.

4,335,271

ELECTRICAL BOX

Joseph Haslbeck, West Vancouver, Canada, assignor to Highland Mfg. Company Ltd., Burnaby, Canada

Filed 1980, Ser. No. 113,850
Claims priority, application Canada, 1979, 321962
Int. Cl.³ H02G *3/08*
U.S. Cl. 174—65 R **7 Claims**



1. An electrical box molded in one piece from a plastic material and comprising:

a cable inlet opening formed in the box;

a flap positioned within the opening and resiliently hingedly mounted at a first edge of the opening to tend to resile to the closed position;

stops positioned within the box to restrict the inward movement of the flap;

an indent in the edge of the flap, remote from the hinged mount, to contact and grip a cable when such a cable is positioned in the inlet opening;

a lip projecting into the box from that edge of opening remote from the first edge of the opening, the flap acting to force the cable against the lip; and

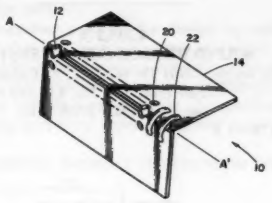
the edge of the opening adjacent said indent being substantially non-deformable by a cable forced into the inlet.

4,335,272

BREAKAWAY CIRCUIT BOARD WITH FLEXIBLE COUPLING

Daniel I. Pittenger, Libertyville, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed 1980, Ser. No. 172,921
Int. Cl.³ H05K *1/02*
U.S. Cl. 174—68.5 **8 Claims**



1. A flexible circuit board including a plurality of first conductors positioned thereon comprising:

a plurality of paired terminals connected to said first conductors and forming two parallel linear arrays on said circuit board, each of said terminals including an aperture passing through said circuit board;

a plurality of elongated, double-tapered perforations in said circuit board defining an axis passing medially between paired terminals with each of said perforations positioned midway between each pair of said terminals, wherein each of said perforations is of varying width, with the widest portion being positioned on said axis and the narrowest portions located adjacent each of said terminals; and

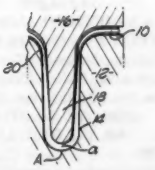
a plurality of second wire conductors inserted in the apertures of each of said paired terminals and electrically connected to said terminals by solder such that upon the bending of said circuit board along the axis defined by said perforations to a predetermined angular displacement, the two circuit board sections thus formed are maintained in semi-rigid self-supporting relative orientation with each of said second conductors guided into wedging contact with a respective perforation by the tapered edges thereof and wherein said two circuit board sections are electrically connected with the angular displacement between said two circuit board sections determined by the length of said second conductors between said paired terminals.

4,335,273

ELECTRICALLY INSULATING SEAL ASSEMBLY

Harry P. Levin, N. Hollywood, Calif., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed 1979, Ser. No. 42,670
Int. Cl.³ F16J *15/10*
U.S. Cl. 174—52 S **15 Claims**



1. An electrical insulating static seal assembly comprising:

a first member having a first seal surface;

a second member having a second seal surface;

a deformable gasket positioned between the first and second seal surfaces for being pressed between the first and second seal surfaces, to provide a sealed region between the

first and second members, the distance between the first and second seal surfaces being minimum at a central location of the sealed region and continuously increasing toward the edge of the sealed region, the gasket having a thickness, prior to compression, which is maximum at the central location and continuously decreasing toward the edge of the gasket; and

means for pressing and holding the first and second seal surfaces together.

4,335,274

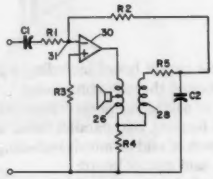
SOUND REPRODUCTION SYSTEM

Richard A. Ayers, 10801 De Witt Ct., El Cajon, Calif. 92020

Filed 1980, Ser. No. 111,232

Int. Cl.³ H04R *3/08, 9/06*

U.S. Cl. 179—1 F **11 Claims**



1. A sound reproduction system having an audio amplifier and a speaker coupled to the output of the audio amplifier, said speaker having an acoustic cone and a coil mandrel with a drive coil wound thereon, characterized by

first feedback means for applying degenerative feedback to said audio amplifier in proportion to the current flowing through said drive coil;

a feedback coil wound either under or over said drive coil on said coil mandrel;

second feedback means including said feedback coil for applying degenerative feedback to said audio amplifier in proportion to the voltage induced in said feedback coil by the motion at the speaker cone; and

said first and second feedback means being arranged in an additive relationship so that the total degenerative feedback applied to said audio amplifier is proportional to the sum of the output of said first and second feedback means for preventing acoustical peaks from being produced in the audio spectrum of said speaker by either a peak in the impedance versus frequency characteristic curve of said drive coil caused by a mechanical resonance of said speaker's moving parts or a valley in said curve caused by an electromechanical resonance in the series circuit comprising the electrical self-inductance of said drive coil and the apparent capacitance of the moving mass due to said cone, said mandrel and said coils.

4,335,275

SYNCHRONOUS METHOD AND APPARATUS FOR SPEECH SYNTHESIS CIRCUIT

George L. Brantingham, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 901,151, Apr. 28, 1978. This application 1980, Ser. No. 117,911

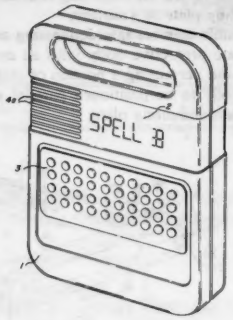
Int. Cl.³ G10L *1/00*

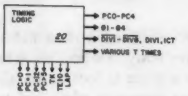
U.S. Cl. 179—1 SM **17 Claims**

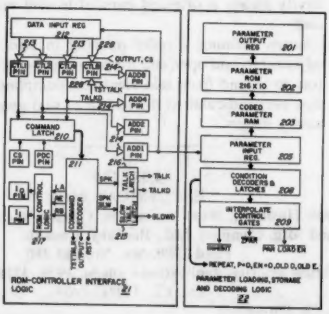
1. A method of controlling a speech synthesis circuit which is responsive to frames of speech data respectively containing speech parameter values representative of digital speech coefficients to produce digital speech signals representative of human speech, said method comprising:

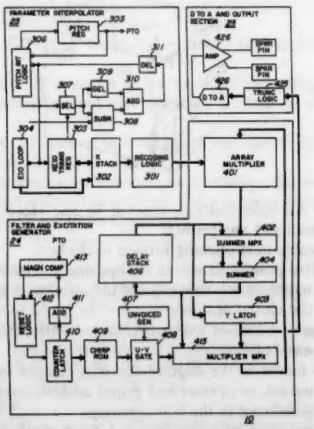
sequentially generating data frame timing signals with a fixed constant time period between successive data frame timing signals;

initiating a new frame of speech data containing specific speech parameter values representative of digital speech coefficients at the input of the speech synthesis circuit in









response to the generation of a data frame timing signal;

sequentially generating a series of interpolation count timing signals within each fixed constant time period between

successive data frame timing signals with a fixed constant interpolation time period between successive interpolation count timing signals in the series thereof, the rate of generation of said interpolation count timing signals being a multiple of the rate of generation of said data frame timing signals;

sequentially generating a plurality of parameter count timing signals within each fixed constant interpolation time period, the rate of generation of said parameter count timing signals being a multiple of the rate of generation of said interpolation count timing signals; and

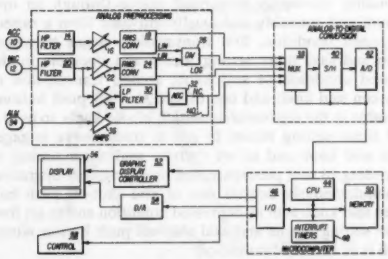
sequentially interpolating between the specific speech parameter values representative of digital speech coefficients as contained in a current frame of speech data and the specific speech parameter values as contained in the frame of speech data immediately previous thereto during each fixed constant interpolation time period as defined within said series of interpolation count timing signals in timed relation as determined by said parameter count timing signals to obtain interpolated intermediate values representative of digital speech coefficients corresponding to at least one of the speech parameters for each interpolation time period.

4,335,276

APPARATUS FOR NON-INVASIVE MEASUREMENT AND DISPLAY NASALIZATION IN HUMAN SPEECH

Glen L. Bull; Wesley E. McDonald, both of Charlottesville, and Milton T. Edgerton, Timbercreek, all of Va., assignors to The University of Virginia, Charlottesville, Va.

Filed 1980, Ser. No. 140,951
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1 SP **20 Claims**



1. An apparatus for the acquisition of a raw speech signal and essentially simultaneous acquisition of a transform of the speech signal, wherein said transform covaries as a function of changes in one or more parameters in the speech signal, comprising:

microphone means for producing first signals representative of raw speech;

means for generating second signals essentially simultaneous to the production of said first signals, said second signals indicative of a selected parameteric characteristic of the human speech;

data processing means coupled to said microphone means and said second signal generating means for analyzing said first and second signals to produce transform signals based thereon;

display means for providing videographic and alphanumeric display of said transform signals and for synchronously auditorily displaying said first signals

amplifying means for amplifying said first and said second signals to produce respective third and fourth signals based on the RMS average of said first and said second signals; and

means for coupling said first, second, third and fourth signals to said data processing means; and said data processing means comprising,

a memory for storing said first, second, third and fourth signals,

means for producing first display signals based on selected of said second, third, fourth and transform signals generated over a predetermined time period, said data processing means applying said first display signals to said display means where said first display signals are displayed as a static graphic plot,

means for generating a cursor for display by said display means such that said cursor traverses said static plot, and

means for synchronously reading-out said memory respective first signals acquired essentially simultaneously with the selected signals represented in that portion of said static graphic plot being traversed by said moving cursor; and

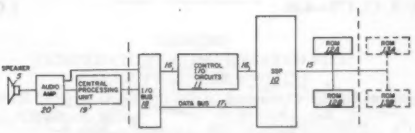
means for auditorily displaying said respective first display signals.

4,335,277

CONTROL INTERFACE SYSTEM FOR USE WITH A MEMORY DEVICE EXECUTING VARIABLE LENGTH INSTRUCTIONS

Ajay K. Puri, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 36,928, May 7, 1979, abandoned. This application 1981, Ser. No. 250,982
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1 SM **6 Claims**



1. An interface system for selectively interactively interfacing between a control device providing variable length instructions and a memory device which initiates and executes respective ones of said variable length instructions over a longer time period as compared to the time period required for the control device to provide a variable length instruction to the memory device, said interface system comprising:

first circuit means interposed between said control device and said memory device for enabling said control device to provide a variable length instruction for reception by said memory device;

second circuit means operatively coupled to said first circuit means and providing a control signal changeable from a first state to a second state in response to said memory device receiving said variable length instruction from said control device to inform said control device that execution of the variable length instruction by said memory device has not been completed, the second state of said control signal being returned to the first state of said control signal in response to completed reception of the variable length instruction by said memory device from said control device while said memory device continues to execute the variable length instruction;

gating circuit means for selectively electrically coupling said control device to said memory device in order to provide said variable length instructions to said memory device, said control device being released from active interaction with said memory device in response to said control signal changing from its second state to its first state to free said control device to perform other control tasks independent of said memory device while said memory device continues to execute the variable length instruction to its completion following which said memory device is available

to receive a subsequent variable length instruction from said control device; and

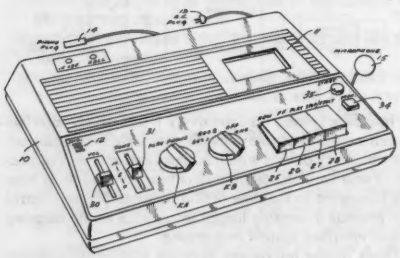
said second circuit means being responsive to an attempt at access of said memory device from said control device during the execution of a variable length instruction by said memory device to change the first state of said control signal to the second state thereof to inhibit interaction between said control device and said memory device and to inhibit action by said control device independent of said memory device until said memory device has completed execution of the current variable length instruction with which said memory device is concerned.

4,335,278

COMBINED TAPE RECORDING AND PLAYBACK APPARATUS AND TELEPHONE ANSWERING APPARATUS CONTROLLED BY PRE-RECORDED SIGNALS

Tseng Chee, Kowloon, Hong Kong, assignor to Elite Electrical Products Limited, Kowloon, Hong Kong

Filed 1980, Ser. No. 112,992
Int. Cl.³ H04M *1/64*
U.S. Cl. 179—6.06 **1 Claim**



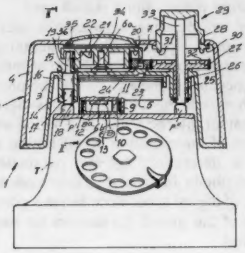
1. In a telephone answering apparatus for use with a magnetic tape having first and second tracks, the apparatus including a drive for said tape, means upon the receipt of an incoming call for applying said announcements to a telephone line, and means for recording messages received from said telephone line; the improvement wherein said apparatus has a record/playback head positioned to be aligned with said first track, circuit means for recording messages from said telephone line on said first track and applying messages from said first track to said telephone line via said record/playback head, and a control head positioned to be aligned with said second track, said apparatus further comprising circuit means connected to said control head for controlling the direction of signal transfer between said record/playback head and said telephone line, a microphone, means recording signals on said first track via said record/playback head from said microphone and including switch means for selectively enabling and inhibiting control of said drive by the output of said control head, said switch means having a first position enabling recording of messages on said first track independently of control signals on said second track, and a second position wherein the drive is stopped prior to a position on the first track at which a message is to be prerecorded, and a start switch for starting said drive.

4,335,279

MECHANICAL TELEPHONE CONVERSATION TIME LIMITING DEVICE

Donato Colombo, Via S. Ammirato, 61, and Lapo Baldacci, Via Lungo l'Affrico, 212, both of Florence, Italy

Filed 1980, Ser. No. 141,745
Claims priority, application Italy, 1979, 22110 A/79
Int. Cl.³ H04M *1/00*
U.S. Cl. 179—7.1 R **7 Claims**



1. A mechanical telephone conversation time limiting device comprising a casing, combination means for attaching said casing to a telephone set so as to prevent access to the telephone shut-off push buttons arranged thereon, a timer arranged within said casing and having a movable member, means for setting said timer, means operatively connected to said movable member for interrupting the telephone communication at the end of a predetermined time period of operation by engaging with one of said push buttons wherein according to the improvement a manually operated knob is provided extending outwardly from said casing through an opening thereof and rotatably and axially movable from a raised to a depressed condition, first transmission means between said knob and said timer setting means and operable in the depressed condition of said knob, second transmission means between said knob and one of said shut-off push buttons and operable in the depressed condition of said knob, so as to cause said timer setting means to get in transmissive engagement with said knob and to set thereby said timer setting means according to said predetermined time period of operation and to simultaneously depress one of said shut-off push buttons, when said knob is in its depressed condition and to set free said timer setting means and said shut-off push button when said knob is in its raised condition.

4,335,280

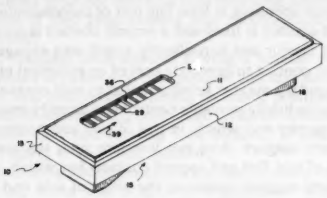
TELEPHONE CONSTRUCTION

Joseph J. Butchko, P.O. Box G-747, Station "G", Calgary, Alberta, Canada

Continuation-in-part of Ser. No. 43,169, May 29, 1979, abandoned. This application 1980, Ser. No. 197,002
Int. Cl.³ H04M *1/31, 1/35*
U.S. Cl. 179—90 R **5 Claims**

5. A dialing mechanism for telephones comprising in combination a rotary assembly, said rotary assembly including a rotary portion and means to rotate said rotary assembly, said means including a longitudinally extending slider bar and means operatively connecting said slider bar with the rotary portion of said rotary assembly, said means including a plurality of gear teeth extending along one side of said slider bar and extending parallel to the horizontal plane of the slider bar, and corresponding teeth formed upon the periphery of the rotary portion of said rotary assembly, said corresponding teeth meshing with the gear teeth of said slider bar, said means to move said slider bar lengthwise including a plurality of spaced and parallel transversely extending ribs formed on the upper side of said slider bar and indicia on the upper side of the said slider bar between adjacent ribs, said rotary assembly including

a connect and disconnect switch, means on said rotary portion to operate said switch, a rotary impulse switch assembly within said casing movable from a switch open to a switch closed position as it rotates, gear means operatively connecting said rotary portion with said impulse switch assembly and a brake control component in said casing operatively connected to said impulse switch assembly, said impulse switch assembly including a skew gear rotatable therewith and a worm gear shaft engaging said skew gear, said brake control assembly being operatively connected to said worm gear shaft and means on said rotary portion operatively engaging said impulse switch assembly to maintain said impulse switch assembly in the closed position when said dial mechanism is in the released and stationary position.

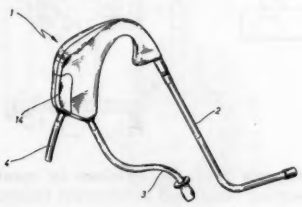


4,335,281

POST-AURICLE CONTOURED HEADSET FOR TWO-WAY VOICE COMMUNICATION

Charles G. Scott, Aptos; James B. Robertson, Soquel, and Robert L. Harris, Aptos, all of Calif., assignors to Plantronics, Inc., Santa Cruz, Calif.

Filed 1980, Ser. No. 162,634
Int. Cl.³ H04M *1/04*
U.S. Cl. 179—156 A **6 Claims**



1. A two-way voice communication headset, comprising:
(a) a post-auricle housing;
(b) means, including a microphone, for converting the wearer's speech to electrical signals, said means being connected to said housing;
(c) means, including a receiver, for converting received electrical signals into sounds and conveying said sounds to the wearer's ear, said means being connected to said housing;
said housing having a lower portion narrowed on both sides, said narrowed portion being adapted to fit adjacent the mastoid process on either side of the wearer's head.

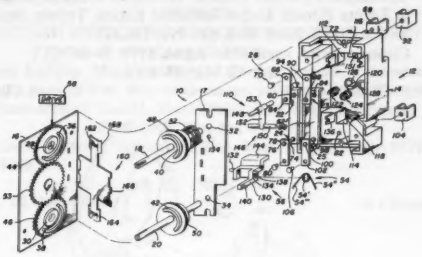
4,335,282

TIMER SWITCH MODULE

Richard E. Adams, Indianapolis, and Richard W. Stafford, Clayton, both of Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.

Filed 1980, Ser. No. 133,532
Int. Cl.³ H01H *7/00*
U.S. Cl. 200—38 R **9 Claims**

1. In a timing mechanism comprising at least first and second sets of electrical contacts opened and closed in response to axial indexing of corresponding first and second shafts; and a coupling means between said sets of electrical contacts and said shafts providing alternative conditions of said sets of electrical contacts whereby three electrical contact conditions are provided:
(1) with both said first and second shafts indexed out, said first set of electrical contacts is closed and said second set of electrical contacts is open;



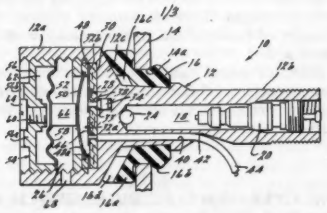
(2) with both said shafts indexed in, said first set of electrical contacts is open and said second set of electrical contacts is closed;
(3) with said first shaft indexed out and said second shaft indexed in, both said first and second sets of electrical contacts are closed.

4,335,283

TEMPERATURE COMPENSATED FILL VALVE/PRESSURE SWITCH

Robert S. Migrin, Dearborn, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed 1979, Ser. No. 100,687
Int. Cl.³ H01H *35/24*
U.S. Cl. 200—61.25 **37 Claims**



1. An improved fluid pressure monitoring switch of the type including a housing adapted for mounting within a container, at least one moving contact and at least one fixed contact both disposed within said housing, said switch operative to monitor the fluid pressure within the container and to shift from a first contact state to a second contact state when the fluid pressure falls below a selected level, the improvement comprising;
a capsule comprising a substantially rigid wall member and a compliant wall member, said wall members defining therebetween a sealed cavity pressurized to a predetermined value, means whereby said compliant wall member is operative to virtually effect a preselectable compensation characteristic by substantially varying the volume of said cavity as a function of cavity and container fluid pressures, said compliant wall member operatively engaging said moving contact for displacement with respect to said fixed contact as a function of fluid temperature within

said capsule, and thereby varying said selected level as a function of said fluid temperature; and

capsule retention means operative to maintain said rigid wall member in a fixed relationship with said housing.

4,335,284

SWITCH FOR DIRECTION INDICATOR OF VEHICLE

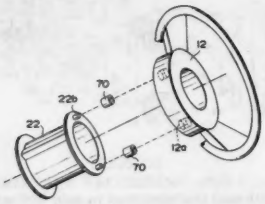
Takeshi Ochiai, Toyota; Jun Ohta, Nagoya; Minoru Izawa, Okazaki, and Takashi Haneda, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed 1980, Ser. No. 114,367

Claims priority, application Japan, 1979, 54-8076[U]

Int. Cl.[3] H01H *3/16*

U.S. Cl. 200—61.27 11 Claims



1. A switch for a direction indicator of a vehicle, comprising:

a. a bracket having a main body operationally connected with a control lever for a direction indicator and rotatable through a predetermined angle in dependence on a direction selected;

b. a ratchet opposed to said main body of said bracket, opposite end portions of which are constantly biased in a direction for engaging with opposite end portions of the main body of said bracket, and rotatable through a predetermined angle in dependence on a direction selected;

c. a cancel cam formed at the periphery thereof with projections capable of releasing engagement between the end portions of the main body of said bracket and said ratchet in response to the rotation of a steering wheel, said cam having means biased in a direction for engaging the steering wheel through a slight clearance with the steering wheel in the direction of rotation and rotating along with the steering wheel; and

d. a frictional sound dampening means interposed between abutting surfaces of said cancel cam and said steering wheel whereby striking noises occurring between the ratchet and bracket are reduced.

4,335,285

FLOAT OPERATED ELECTRICAL SWITCH ASSEMBLY

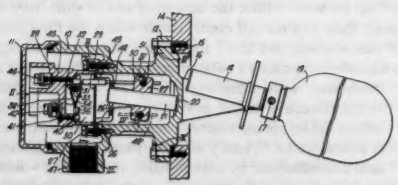
Norman West, High Wycombe, England, assignor to Bestobell Mobrey Limited, Slough, England

Filed 1980, Ser. No. 122,046

Claims priority, application United Kingdom, 1979, 7905876

Int. Cl.[3] H01H *35/18*

U.S. Cl. 200—84 C 10 Claims



1. In a float-operated switch assembly having a float mounted with a primary magnet on a wet side of said assembly so that said primary magnet moves, in use, upon movement of said float, said primary magnet controlling the movement of a secondary switch magnet by magnetic influence through a non-magnetic wall, and said secondary magnet being mounted on a dry side of said assembly and its movement controlling the operation of electrical switch contacts; the improvement wherein said secondary magnet swings between two stable end positions under the control of said primary magnet, said secondary magnet operating at least one pair of switch contacts of which a first contact is fixed and a second contact is mounted on a contact carrier and is resiliently urged into engagement with said first contact to complete part of an electrical circuit, and said secondary magnet being coupled to said contact carrier by a longitudinally movable control rod directly engaging the contact carrier and which, in one of said end positions of said secondary magnet, does not interfere with the resilient engagement of said first and second contacts but which, when said secondary magnet swings to the other of said end positions, moves longitudinally and moves said contact carrier against said resilient urging to disengage said second contact from said first contact and open said circuit part, and in the one end position of the secondary magnet the resilient engagement of the first and second contacts being independent of any connection of the contacts to the secondary magnet or of the exact position of the secondary magnet.

4,335,286

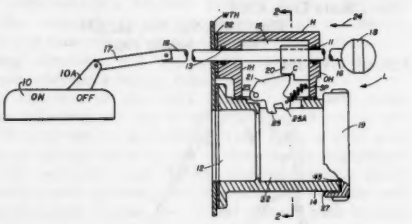
WATERPROOF ELECTRICAL SWITCH

Gunnar Nelson, P.O. Box 2847, Marathon Shores, Fla. 33052

Filed 1980, Ser. No. 124,067

Int. Cl.[3] H01H *9/04*

U.S. Cl. 200—302 11 Claims



1. In a waterproof device having means for opening and closing an electrical circuit and an electrical receptacle for receiving an electrical plug, the improvement which comprises:

a watertight housing, said watertight housing having a first passage means and a second passage means;

electrical means for opening and closing an electric circuit, said electrical means being contained within said watertight housing;

plug means, said first passage means providing communication between said watertight housing and said plug means;

first waterproof means for providing a waterproof seal between said plug means and said watertight housing means;

electrical connection means for electrically connecting said plug means and said electrical circuit;

safety lock housing, said second passage means providing communication between said electrical means and said safety lock housing;

first shaft means, said first shaft means extending from said watertight housing through said second passage means into said safety lock housing and through a third passage means to the exterior of said safety lock housing;

a rotating lock member, said rotating lock member being positioned in said safety lock housing and biased for rotation about a second shaft, lock means afixed to said first shaft and capable of movement from a first position to a

second position, said first position being open and said second position corresponding to said circuit being closed, said first shaft including connecting means, for connecting said first shaft to said electrical means and causing said electrical means to open and close said electrical circuit;

a plug receiving region, said region being positioned such that a first portion of said rotating lock member extends into said plug receiving region, in the path of the plug during insertion into said plug receiving region, the insertion of said plug causing said rotating lock member to rotate;

said rotating lock member having a second portion positioned between said first position and said second position of said lock means when in its biased position;

said lock means being positioned when in its second position, such that said rotating lock member is precluded from rotating to its biased position;

interlocking means, interlocking said rotating lock and said plug when said plug is in engagement with said plug means, said interlocking means preventing withdrawal of said plug when said rotating lock member is not in its biased position;

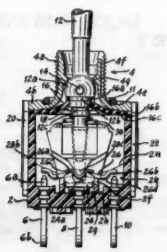
whereby, said plug cannot be moved until the shaft is moved such that said electrical circuit is open and said rotating lock member can be rotated to its biased position and said plug cannot be inserted unless rotating lock member is in its biased position.

4,335,287

LEVER SEAL FOR MINIATURE SEALED TOGGLE SWITCH

Louis F. Aschenbach, Menomonee Falls, and Selami Y. Pusatcioglu, Milwaukee, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed 1981, Ser. No. 244,486
Int. Cl.³ H01H *9/04, 21/04*
U.S. Cl. 200—302 **7 Claims**



1. A miniature environmentally-sealed toggle switch comprising:

a housing having a base provided with a contact compartment and a cover having a bushing extending therefrom;

stationary contacts in said compartment having terminals extending through said base to the outside;

a movable contactor supported on one of said stationary contacts serving as a pivot therefor and being rockable in opposite directions to engage and disengage at least one other stationary contact;

a toggle lever extending down through said bushing and means pivotally supporting said toggle lever in said bushing for limited pivotal movement;

an actuator engaging said contactor and being slidable therealong to rock the same;

means coupling said toggle lever to said actuator comprising a hole in said actuator into which the inner end portion of said toggle lever extends and a frustoconical compression spring biasing said actuator against said contactor so that said actuator slides along said contactor and concurrently rocks in unison with said toggle lever as the latter is pivotally operated from one operating position to another;

sealing means comprising a gasket hugging said toggle lever below its pivot and means responsive to clamping of said cover for stretching said gasket outwardly toward the periphery of said base and said cover

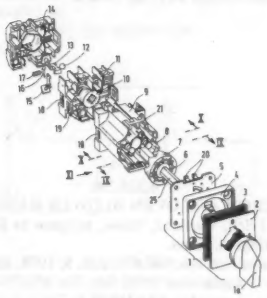
and an adhesive-sealant between and about said toggle lever and said gasket.

4,335,288

ELECTRIC SWITCHING APPARATUS PARTICULARLY A CAM SWITCH

Bernd Ludwig, Marienheide, and Jürgen Donner, Gummersbach, both of Fed. Rep. of Germany, assignors to Starkstrom Gummersbach GmbH, Marienheide, Fed. Rep. of Germany

Filed 1980, Ser. No. 147,092
Claims priority, application Fed. Rep. of Germany, 1979, 2918289
Int. Cl.³ H01H *9/02*
U.S. Cl. 200—307 **14 Claims**



1. An electric switching apparatus, particularly a cam switch including a driving unit, a detent chamber unit, and at least one switch chamber unit, said units having a modular construction and being consecutively arranged in axial direction one after the other, comprising snap action arresting means integrally formed on opposite side walls of each unit and including on respective side walls resilient arresting pieces, and rigid arresting points, said points on one unit being releasably engageable with the arresting pieces in the adjoining unit, and recesses formed in said side walls of respective units opposite the free edge of each arresting piece to accommodate a screwdriver-like tool for lifting said arresting pieces during the disassembly of respective units, said side walls in each unit being asymmetrically staggered relative to each other to define a central step for preventing angular displacement of said unit.

4,335,289

MICROWAVE OVEN

Duaine W. Smith, Tiffin, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa

Filed 1978, Ser. No. 971,717
Int. Cl.³ H05B *6/72*
U.S. Cl. 219—10.55 F **24 Claims**

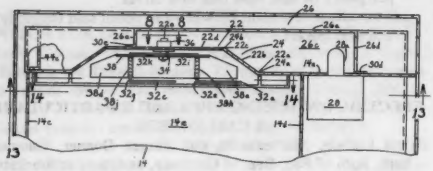
1. Antenna assembly for a microwave oven having a flow of air circulating through a microwave oven cavity comprising:

a. directional rotating antenna means;

b. probe antenna means connected to a common junction of said directional rotating antenna means; and,

c. antenna rotating means including a dielectric bearing axially supporting said probe antenna means and a dielectric bushing rotatably supporting said bearing, said bushing including means for locking said antenna rotating means into engagement is a wall of said microwave oven cavity, said locking means including a plurality of out-

wardly extending key means and said wall including an equal plurality of keyway means, each of said keyway means including a tooth whereby said probe antenna means excites said directional rotating antenna means with



microwave currents providing uniform energy distribution and consistent heating within said microwave oven cavity and said key means inserts through said keyway means and each of said key means engages with each of said tooth of said keyway means.

4,335,290

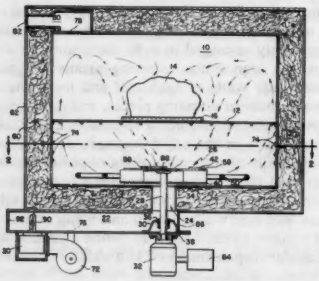
MICROWAVE OVEN BLOWER RADIATOR

Wesley W. Teich, Wayland, Mass., assignor to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 866,970, Jan. 5, 1978, abandoned. This application 1979, Ser. No. 69,479

Int. Cl.[3] H05B *6/72*

U.S. Cl. 219—10.55 F **10 Claims**



1. In combination:

a microwave oven comprising a metallic enclosure supplied with microwave energy through a coaxial line coupled through a wall of said enclosure to a rotating microwave energy radiator in said enclosure;

a resistive heating element in said enclosure;

means for circulating air heated in said oven by said resistive heating element, said circulating means comprising means rigidly connected to said rotating radiator for blowing said air past said resistive heating element;

said radiator being supplied by said microwave energy from a magnetron through said coaxial line, the central conductor of said coaxial line supporting said radiator, said radiator being rotated by said central conductor; and

said radiator comprising a plurality of radiating elements simultaneously radiating separate patterns of microwave energy into said enclosure.

4,335,291

POPPED CORN MAKING APPARATUS USED IN A MICROWAVE OVEN

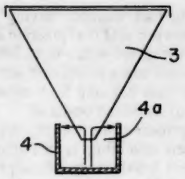
Ken Ishino; Taro Miura, and Yasuo Hashimoto, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 137,257

Claims priority, application Japan, 1979, 54-92596

Int. Cl.[3] H05B *6/80*

U.S. Cl. 219—10.55 E **6 Claims**



1. A popped corn making apparatus used in a microwave oven which comprises a bowl having an opening at the upper part and a narrow closed bottom and a substantially conical shape; and a resonator placed at the bottom of said bowl whereby electric field resulted by resonance of said resonator under an application of microwave, is applied to grains of corn contained in said bowl to produce a popped corn.

4,335,292

HIGH FREQUENCY OVEN WITH DRAWER TYPE DOOR

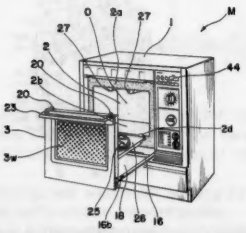
Junzo Tanaka, Fujiidera; Chikao Nakano, and Hitoshi Kurita, both of Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed 1980, Ser. No. 137,444

Claims priority, application Japan, 1979, 54-57329; 1979, 54-62072[U]

Int. Cl.[3] H05B *6/78*

U.S. Cl. 219—10.55 F **9 Claims**



1. A high frequency heating apparatus comprising:

a main body having a heating chamber therein;

said heating chamber having an access opening in one side thereof and a bottom wall;

a high frequency energy oscillating means for supplying high frequency energy into said heating chamber;

a drawer type door having a substantially horizontal and vertical portion defining an L shaped cross section in a vertical plane parallel to a longitudinal axis of said door, said horizontal portion being longitudinally slidably received into said main body for allowing said vertical portion to close said access opening;

a pair of metallic plates, said plates being attached to the side of said vertical portion facing said heating chamber and being spaced from one another;

each of said metallic plates having a projecting wall extending toward said heating chamber;

pin members respectively secured to each said projecting wall and respectively having an electrically insulating material therearound;

a cantilever shelf member having claw members at one end thereof, said claw members being adapted to respectively engage at least one of said pin members of each projecting wall and said shelf member one end being adapted to abut at least one of said pin members to detachably mount said shelf member to said vertical portion in a substantially horizontal position;

said shelf member being slidably received within said heating chamber and an end opposite said one end being supported by said bottom wall when said door is moved toward said opening, said shelf member being supported only at said one end when said door is in its furthermost position away from said opening;

said shelf member being electronically insulated from said main body and said door;

a turntable rotatably mounted on said shelf member;

a magnetic coupling means operatively associated with said turntable for rotating said turntable; and

a driving means operatively associated with said magnetic coupling means for driving said coupling means and thereby rotating said turntable.

4,335,293

HEATING CONTROL APPARATUS BY HUMIDITY DETECTION

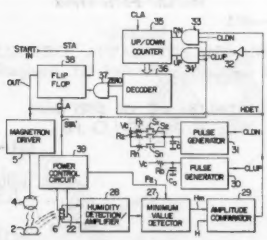
Tetsu Kobayashi; Takato Kanazawa, both of Nara, and Makoto Tsuboi, Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 768,191, Feb. 14, 1977, abandoned. This application 1980, Ser. No. 157,171

Claims priority, application Japan, 1976, 51-16737; 1976, 51-18116; 1976, 51-115288

Int. Cl.³ H05B *6/68*

U.S. Cl. 219—10.55 B **11 Claims**



1. A heating control apparatus comprising:

heating means for heating food;

humidity sensor means for detecting relative humidity, said relative humidity having a minimum value and changing with the amount of water vapor emanating from said food as said food is heated;

humidity change detecting means connected to said humidity sensor means for detecting when an abrupt rise occurs in the value of relative humidity with respect to said minimum relative humidity value, the output of said humidity change detecting means being substantially unaffected by changes in the surrounding temperature and humidity conditions, said humidity change detecting means detecting when said relative humidity has risen by a predetermined threshold value from said minimum relative humidity value, said humidity change detecting means including,

an amplifier circuit for amplifying the output signal of said humidity sensor,

a minimum value detector circuit for holding the minimum value of the output signal of said amplifier circuit and providing a difference signal corresponding to the difference between the output of said amplifier circuit and said minimum value, and

a comparator circuit for comparing said difference signal with said predetermined threshold value, said comparator circuit providing a signal when said difference signal reaches said predetermined threshold value; and

heating time determining means connected to said humidity change detecting means for determining the total heating time including an additional heating time which commences after said humidity change detecting means detects that the change in the relative humidity has reached the predetermined threshold value.

4,335,294

EDM METHOD AND APPARATUS HAVING A GAP DISCHARGE CIRCUIT CONSTRUCTED WITH LIMITED STRAY CAPACITANCES

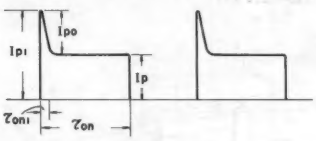
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed 1980, Ser. No. 171,943

Claims priority, applications Japan, 1979, 54/94737; 1979, 54-94738; 1979, 54-106164

Int. Cl.³ B23P *1/08*

U.S. Cl. 219—69 M **25 Claims**



1. A method of the electrical-discharge-machining of a workpiece electrode juxtaposed with a tool electrode across a machining gap flooded with a liquid dielectric, said method comprising the steps of:

applying a succession of machining current pulses across the machining gap through a gap discharge circuit by repetitively pulsing the output of a DC source by means of a semiconductor switching unit, said gap discharge circuit including said semiconductor switching unit, leads in said unit, cables which connect said DC source to said unit, and said DC source and said unit to a vicinity of said machining gap, conductors in said vicinity which lead from said cables for directly energizing said tool electrode and said workpiece electrode and having stray capacitances distributed therein, each of said machining current pulses having an increased peak current at an initial portion thereof due to the fact that an electrostatic energy stored on said distributed stray capacitances during the preceding pulse interval is discharged through said machining gap when said machining pulse is delivered to said gap; and

controlling said initial increased peak current to a minimum by limiting the total value of said distributed stray capacitances in said gap discharge circuit not to exceed 0.01 microfarad.

4,335,295

METHOD OF MARKING A METAL DEVICE

Gary J. Fowler, 121 31st St., Manhatten Beach, Calif. 90266

Filed 1979, Ser. No. 37,341

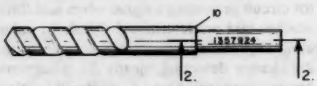
Int. Cl.³ B23K *27/00*

U.S. Cl. 219—121 LM **2 Claims**

1. A method of marking a metal device, which has been formed from a metal with alloying materials with an identification symbol or a serial number that is not detectable by a visual examination comprising the steps of:

a. locally heating a designated area on the surface of the metal device to a temperature in the range of 1000° C. to

1100° C. so that the microstructure of the surface of the metal device is altered; and



b. using a selected chemical etching solution to etch away the altered microstructure in the designated area at a different rate than the unaltered microstructure outside the designated area thereby exposing the designated area.

4,335,296

MACHINE TOOL WITH A LASER BEAM CUTTING DEVICE

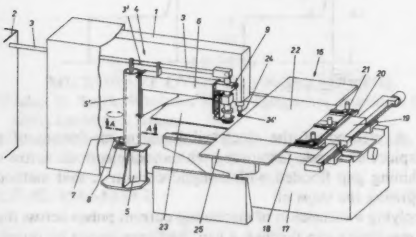
Walter Bredow, Alfeld, Fed. Rep. of Germany, assignor to C. Behrens AG, Alfeld, Fed. Rep. of Germany

Filed 1980, Ser. No. 172,845

Claims priority, application Fed. Rep. of Germany, 1979, 2933700

Int. Cl.³ B23K *27/00*

U.S. Cl. 219—121 LG **9 Claims**



1. A machine tool comprising a horizontally arranged coordinate table; means for moving a workpiece on the table in two directions normal to each other; an elongated machine tool body; at least one vertically reciprocatable tool located in said machine tool body for punching a workpiece moved under the tool by the table; a laser beam cutting device including a laser beam cutting head; an overhang beam carrying at one end thereof said laser beam cutting head above a plane in which a workpiece on the table is movable; and means supporting said overhang beam independent of and disassociated from the machine tool body supporting the reciprocating tool so that vibrations created during operation of the tool are not transmitted to the laser beam cutting device.

4,335,297

ELECTRON BEAM PROCESSOR

Roger G. Little, Bedford, Mass., assignor to Spire Corporation, Bedford, Mass.

Division of Ser. No. 76,592, Sep. 18, 1979, Pat. No. 4,306,272. This application 1980, Ser. No. 218,067

Int. Cl.³ B23K *15/00*

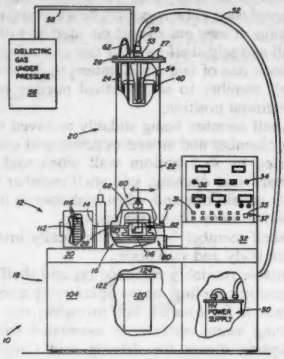
U.S. Cl. 219—121 EQ **10 Claims**

1. An electron beam pulsing means comprising:

(a) an electrical energy store of a single tubular construction having an inner electrode, an insulating means formed of an epoxy-resin cast about said electrode and having reinforced tapered ends extending beyond said electrode, and an outer electrode formed about said insulating means;

(b) trigger means mounted concentrically in one end of said inner electrode; and

(c) field emission diode structure mounted in operative association with said one end of said inner electrode housing said trigger means;



(d) said electrical energy store serving as a transmission line during discharge of said electron beam pulsing means to said field emission diode structure.

4,335,298

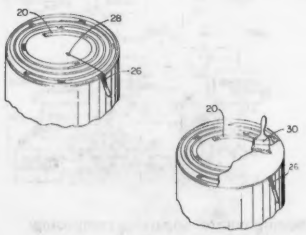
REINFORCED PLASTIC CONTAINER WITH AN INTEGRAL HEATING ELEMENT

Robert W. Newbold, Jr., Cincinnati, Ohio, assignor to Plas-Tanks Industries, Inc., Fairfield, Ohio

Division of Ser. No. 34,775, Apr. 30, 1979, Pat. No. 4,287,663. This application 1981, Ser. No. 251,150

Int. Cl.³ F27D *11/02*

U.S. Cl. 219—441 **3 Claims**



1. A plastic fiberglass reinforced container with integral heating means, comprising:

(a) a corrosion liner, said corrosion liner including:

(i) a continuous molded internal surface of C-grade fiberglass, said molded surface being adapted to interface with the container contents; and

(ii) a backup layer of E-grade fiberglass bonded to said C-grade fiberglass;

(b) a structural lamina of E-grade fiberglass bonded to said backup layer;

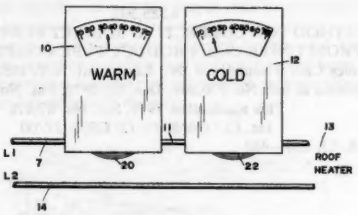
(c) an electrical heating element encapsulated in E-grade fiberglass positioned between said corrosion liner and said structural lamina, said heating element being bonded to both the corrosion liner and the structural lamina and being adapted to heat the container contents; and

(d) electrical lead wires extending through said structural lamina and being adapted to connect said heating element to an external electrical power source.

4,335,299
THERMOSTATIC CONTROL FOR ELECTRIC ROOF HEATING CABLE

James F. Belohlavek, 647 Range Line Rd., Mosinee, Wis. 54455

Filed 1980, Ser. No. 191,919
Int. Cl.³ H05B 1/02
U.S. Cl. 219—510 4 Claims



1. Differential thermostatic control for a roof heating tape comprising

a first electric circuit component embodying contact points and temperature responsive biasing means wherein said contact points are opened by said biasing means by increase in ambient air temperature sensed above an upper temperature control limit,

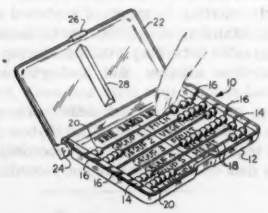
a second electric circuit component embodying contact points and temperature responsive biasing means wherein said contact points are opened by said biasing means by decrease in ambient air temperature sensed below a lower temperature control limit,

said first electric circuit component and said second electric circuit component being connected in series circuit without substantial voltage drop thereacross for controlling energization of load.

4,335,300
DIET CONTROL APPARATUS AND METHOD

William C. Shepherd, 725 Palomares Ave., San Dimas, Calif. 91773

Filed 1980, Ser. No. 181,867
Int. Cl.³ G06C 1/00
U.S. Cl. 235—123 4 Claims



1. Apparatus for recording and visually indicating the consumption of various nutrients which comprises:

a box having first and second elongated members disposed in spaced relationship, said box including a plurality of members disposed in generally rectangular relationship, first and second members of said plurality of members being disposed in generally parallel relationship;

a cover maintained on said box and movable between open and closed positions;

a plurality of wires intermediate said first and second members in generally mutually parallel relationship;

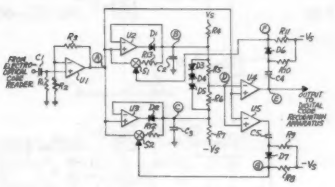
a plurality of beads carried on each of said wires, each bead having a central aperture engaging a wire, said apertures and said wires being dimensioned to allow free movement of each bead on the wire on which it is mounted; and

means for constraining said beads on each wire from moving past a predetermined line defining first and second axial sections of each of said wires, said means for constraining comprises a member carried on said cover and configured to prevent axial movement of said beads on said wires past said line only when said cover is closed, said means for constraining allowing free movement of said beads when said cover is open.

4,335,301
WAVE SHAPING CIRCUIT FOR ELECTRO-OPTICAL CODE READERS

Roger C. Palmer, and William J. Purdue, both of Edmonds, Wash., assignors to Interface Mechanisms, Inc., Lynnwood, Wash.

Filed 1979, Ser. No. 79,326
Int. Cl.³ G06K 7/10
U.S. Cl. 235—462 34 Claims



1. A wave shaping circuit for producing a circuit output signal, which alternates between first and second logic levels, from a code reader electrical output signal whose voltage alternates in a substantially sinusoidal manner between positive and negative peak levels as a coded record is scanned by the code reader, said circuit comprising:

(A) first means responsive to the code reader electrical output signal for providing a first signal whose voltage is related to that of the code reader electrical output signal;

(B) a positive peak detector responsive to said first signal for providing a second signal, said positive peak detector being operative to cause the voltage level of said second signal to follow that of said first signal, as the voltage level of said first signal increases from the time that the voltage level of said second signal is brought substantially equal to that of said first signal to the time that the voltage level of said first signal begins to decrease, and being further operative to thereafter maintain the voltage level of said second signal substantially constant;

(C) a negative peak detector responsive to said first signal for providing a third signal, said negative peak detector being operative to cause the voltage level of said third signal to follow that of said first signal, as the voltage level of said first signal decreases from the time that the voltage level of said third signal is brought substantially equal to that of said first signal to the time that the voltage level of said first signal begins to increase, and being further operative to thereafter maintain the voltage level of said third signal substantially constant;

(D) second means combining said second and third signals to provide a reference signal whose voltage level is between those of said second and said third signals;

(E) third means for providing said circuit output signal in response to a comparison of the voltage levels of said first and said reference signals, said circuit output signal having said first logic level when the voltage level of said first signal exceeds that of said reference signal and having said second logic level when the voltage level of said reference signal exceeds that of said first signal; and,

(F) fourth means for bringing the voltage level of said second signal substantially to that of said first signal at the

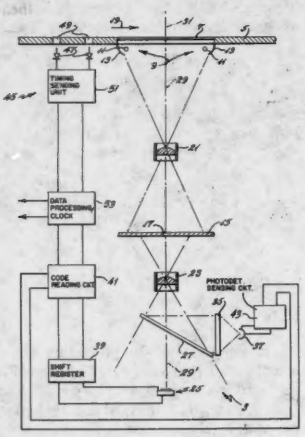
time that the voltage level of said first signal goes above that of said reference signal, and for bringing the voltage level of said third signal substantially to that of said first signal at the time that the voltage level of said first signal goes below that of said reference signal.

4,335,302

BAR CODE SCANNER USING NON-COHERENT LIGHT SOURCE

Jean J. Robillard, Amherst, Mass., assignor to R.L.S. Industries, Inc., Elk Grove, Ill., a part interest

Filed 1980, Ser. No. 179,754
Int. Cl.³ G06K *7/10*
U.S. Cl. 235—462 **15 Claims**



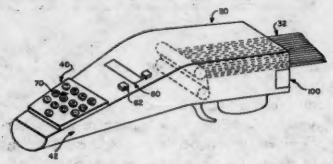
1. A label-scanning apparatus comprising:
(a) a top window at a top surface level;
(b) a non-coherent light source below the level;
(c) an optically opaque lower surface, located below the top surface, having a longitudinal slit therein, the slit being transparent to light;
(d) a first optical lens located between the top surface and the lower surface, the lens adapted to focus an image along a horizontal line on a package label resting on the top surface into the slit;
(e) a diode array located below the lower surface, the array having a plurality of photodiodes aligned longitudinally in a single row, the photodiodes changing their resistances proportionally to the illumination on their surfaces, the diode array being formed as an integrated circuit;
(f) a photocell;
(g) a partially transparent mirror located below the lower surface, the partially transparent mirror being adapted to reflect a portion of light impinging thereon and to transmit a remaining portion of light impinging thereon;
(h) a second optical lens, located between the lower surface and the partially transparent mirror, the second optical lens cooperating with the partially transparent mirror to focus the image focused on the slot by the first optical lens onto the diode array and to transmit a portion of the image focused on the slot to the photocell;
(i) a third optical lens located between the partially transparent mirror and the photocell, the third optical lens cooperating with the second optical lens and the partially transparent mirror to focus a portion of the image focused on the slit by the first optical lens onto the photocell;
(j) a shift register operable to register the light sensed by the diodes on the digital array;
(k) a photocell-monitoring circuit responsive to the light sensed by the photodetector;
(l) a data processing means, the data processing means receiving signals from the shift register and the photocell monitoring circuit, and producing an output, the output corresponding to a pattern of the image along the horizontal line of the package label and the change of the image of the package label as the package is moved along the top surface provided that the pattern coincides with predetermined code parameters.

4,335,303

METHOD FOR COLLECTING MARKET SURVEY DATA FROM UNIVERSAL PRODUCT TYPE CODED ITEMS

James Call, 8 Soundview Dr., Larchmont, N.Y. 10538

Division of Ser. No. 970,986, Dec. 19, 1978, Pat. No. 4,290,688.
This application 1979, Ser. No. 87,476
Int. Cl.³ G06K *15/12;* G03B *27/00*
U.S. Cl. 235—463 **8 Claims**



1. Method for collecting market survey data in a data recorder for universal product type code encoded market data, comprising:
providing said data recorder with a housing having an exposure aperture therein for admitting a source of light therethrough;
controllably advancing a photographic recording medium past said exposure aperture for optically aligning a different predetermined portion of said photographic recording medium with said exposure aperture each time said medium is advanced, said exposure aperture being optically alignable with a universal product type code on a market item for which said survey data is to be collected;
photographically recording said universal product type code data on said medium for said market item in response to the reflection of the image of said universal product type code on to said medium through said exposure aperture when exposed to said light source;
selectively inserting, by means of keyboard means, a photographic recording of ancillary market survey data on said photographic recording medium corresponding to said market item adjacent said photographically recorded universal product type code; and
providing, on said keyboard means, prompting indicator means for alerting the user of the keyboard to a predetermined sequence of insertion and recording of said market survey data on said photographic recording medium.

4,335,304

SIGNAL DETECTION MECHANISM FROM ELECTRON MULTIPLIER

Paul W. Palmberg, Minneapolis, Minn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed 1980, Ser. No. 174,022
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—207 **8 Claims**

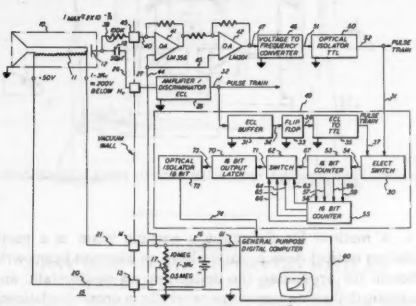
1. An electron multiplier detection mechanism comprising:
(a) a high-vacuum chamber having a plurality of electrical feedthrough devices disposed in a wall of said chamber;
(b) an electron multiplier disposed within said high-vacuum chamber and adapted to be coupled at its input to the output of a charged particle analyzer, said electron multiplier including collector and excitation means;

(c) floating operational amplifier means disposed outside said high-vacuum chamber;

(d) a high voltage power supply disposed outside said high-vacuum chamber connected to the excitation means and collector of said electron multiplier through said plurality of electrical feedthrough devices, the voltage appearing at the excitation means being substantially lower than the voltage magnitude on the collector;

(e) an amplifier-discriminator disposed outside said high-vacuum chamber to provide output data proportional to the pulse rate of said electron multiplier;

(f) resistance coupling means disposed within said high-vacuum chamber coupling said collector to the input of said operational amplifier means through said plurality of electrical feedthrough devices;



(g) capacitance coupling means disposed within said high-vacuum chamber coupling said collector to the input of said amplifier discriminator through said plurality of electrical feedthrough devices;

(h) a voltage-to-frequency converter disposed outside said high-vacuum chamber operably connected to said operational amplifier means and providing an output signal having a frequency proportional to the voltage magnitude at the input;

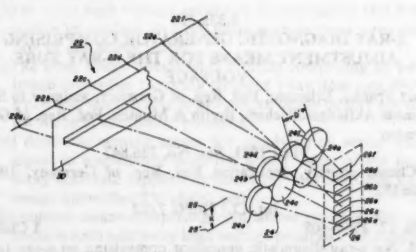
(i) and an input-to-output isolator disposed outside said high-vacuum chamber having its input operably connected to the output of said voltage-to-frequency converter and providing an electrically isolated output signal representative of the pulse rate of said electron multiplier.

4,335,305

TWISTING GEOMETRY SCANNER UTILIZING STAGGERED LENS ARRAY

Ned J. Seachman, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed 1980, Ser. No. 179,204
Int. Cl.³ H01J *3/14*
U.S. Cl. 250—216 **8 Claims**



1. An optical system wherein a line is scanned by a light source and the reflected light is projected by a plurality of lenses onto an area detector array, said system including:

a first array of lenses having their centers lying on a first axis tilted with respect to the axial direction of the scan line, each lens adapted to project images of a first group of alternating segments of said scan line onto a first group of tiered linear detector arrays, and

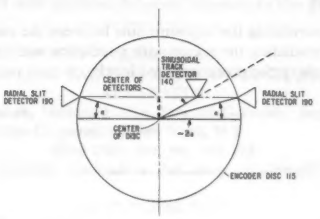
a second array of lenses having their centers lying on a second axis parallel to said first lens array axis, each lens of said second array adapted to project a second group of alternating line segments onto a second group of tiered linear detector arrays.

4,335,306

SURVEYING INSTRUMENT

Alfred F. Gort, Loveland, Colo., and Charles E. Moore, Rochester, N.Y., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 842,864, Oct. 17, 1977, abandoned, which is a division of Ser. No. 742,938, Nov. 18, 1976, Pat. No. 4,108,539.
This application 1979, Ser. No. 89,007
Int. Cl.³ G01D *5/34*
U.S. Cl. 250—231 SE **10 Claims**



1. A shaft angle encoder comprising:

an encoder disc for periodically modulating first and second signals, the signals being modulated as a function of angular displacement;

first, second and third detectors linearly aligned, said first and second detectors having inputs coupled to receive the first signal, said third detector coupled to receive the second signal, each detector having an output, each detector generating a signal upon its respective output responsive to the signal input thereto;

processor means coupled to the outputs of said first, second and third detectors for determining the eccentricity error from signals responsive to the outputs of said first and second detectors, modifying the measurement of the angular displacement determined from said third detector in response to the determined error, and combining angular displacements derived from said detectors to obtain a single angular displacement.

4,335,307

RADIOGRAPHIC APPARATUS AND METHOD WITH AUTOMATIC EXPOSURE CONTROL

Richard C. DeVries, Aurora, and Edwin R. Hill, Chardon, both of Ohio, assignors to Technicare Corporation, Solon, Ohio

Filed 1980, Ser. No. 142,187
Int. Cl.³ G03B *41/16*; N05G *1/30*; A61B *6/00*; H04N *5/32*
U.S. Cl. 250—322 **10 Claims**

1. A method of reducing a patient's exposure to x-radiation in a radiographic diagnostic apparatus comprising the steps of:

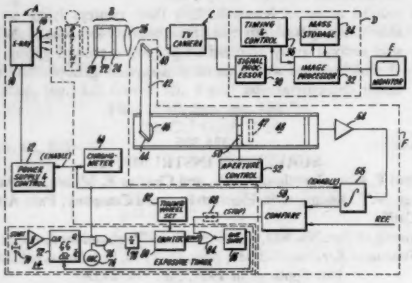
(a) irradiating a region of the patient with x-radiation to generate a shadowgraphic projection through the region;

(b) converting the x-radiation which has traversed the region to an optical image of the shadowgraphic projection;

(c) converting the optical image to a video signal of the shadowgraphic projection;

(d) determining the average intensity of light over at least a part of the optical image;

(e) integrating the intensity with respect to time to determine the exposure to light since the beginning of the integration;



(f) when the exposure reaches a predetermined level, stopping the irradiation of said region with x-radiation;

and

(g) determining the exposure time between the commencing of irradiating the region with x-radiation and the exposure reaching the predetermined level.

4,335,308

INSPECTION OF UNDERWATER STRUCTURES

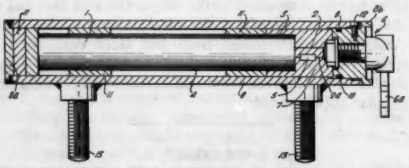
Leonard R. Caldecourt, Faringdon; Gordon V. Evans, Blewbury, and Tony V. Parsons, Didcot, all of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed 1980, Ser. No. 110,406

Claims priority, application United Kingdom, 1979, 7900845

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—358 R **11 Claims**



1. A radiation detector for use in a deep water off-shore underwater environment, comprising a hermetically sealed outer casing having a waterproof plug and socket connection for a telemetry cable, and within the outer casing, a radiation detector tube having a hermetically sealed metal case out of one end of which extends an output lead, wherein the said end of the radiation detector tube through which the output lead passes, the output lead and a portion of the plug connected to the output end are encapsulated in a resilient impervious material so as to prevent the ingress of water to the part of the radiation detector tube where the output lead emerges, and means for mechanically isolating the radiation detector tube from the outer casing.

4,335,309

METHOD AND DEVICE FOR THE RAPID DEFLECTION OF A PARTICLE BEAM

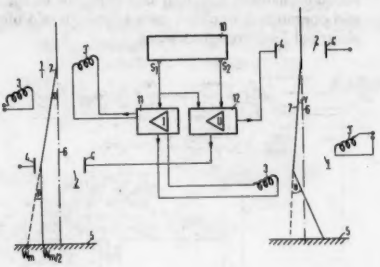
Klaus Anger, and Jüergen Frosien, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 172,085

Claims priority, application Fed. Rep. of Germany, 1979, 2937136

Int. Cl.³ H01J *37/00, 36/147*

U.S. Cl. 250—396 R **4 Claims**



1. A method for deflecting a particle beam in a particle radiation optical device, particularly an electron beam writer, wherein for producing the deflection, an electrostatic and a magnetic deflection means are generally in crossed relationship to one another and are arranged one behind the other in the beam direction, characterized in that for the purpose of compensation of extra-axial chromatic errors to a maximum degree: both deflection means (1, 2) are simultaneously driven with a first frequency (f_1) in such manner that the electrostatic deflection of the particle beam (7) is antiparallel and half as great as the magnetic deflection; and in that the electrostatic deflection means (2) is additionally driven with a second higher frequency (f_2; $f_2 > f_1$) whose amplitude is such as to produce a smaller deflection amplitude than the amplitude of the electrostatic deflection produced by the first frequency (f_1).

4,335,310

X-RAY DIAGNOSTIC GENERATOR COMPRISING ADJUSTMENT MEANS FOR THE X-RAY TUBE VOLTAGE

Kurt Franke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed 1981, Ser. No. 226,847

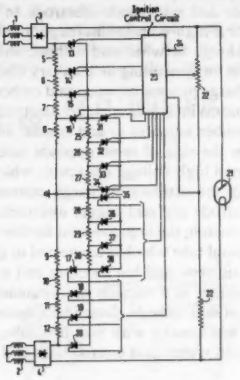
Claims priority, application Fed. Rep. of Germany, 1980, 3005182

Int. Cl.³ H05G *1/32*

U.S. Cl. 250—408 **3 Claims**

1. An x-ray diagnostic generator comprising an x-ray tube having a high voltage circuit, adjustment means for adjusting the x-ray tube voltage comprising a variable ohmic resistance in the high voltage circuit of the x-ray tube, said resistance

comprising a series of individual resistances (5 through 12), and electronic switches (13 through 20) individually actuatable to



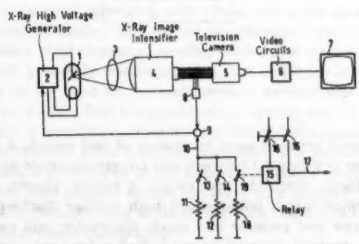
bypass selected ones of said individual resistances (5 through 12).

storage means (11, 12) for selectively supplying respective rated value signals to said comparator circuitry for selectively establishing respective input x-ray dose rate values greater than said predetermined value and selectively connectable with said comparator circuitry for controlling the input x-ray dose rate supplied to the x-ray image intensifier-TV chain in accordance with the respective rated value signal from a selected one of said rated value storage means, a further rated value storage means, (18) for selectively supplying a fixed rated value signal to said comparator circuitry, for selectively connectable with said comparator circuitry for selectively establishing an input x-ray rate at a preprogrammed fixed rated value less than said predetermined value required for a medical diagnosis but sufficient to provide an output image from said x-ray image intensifier-TV chain for purposes of visual observation to facilitate positioning a patient, and switching means (15, 16, 19) selectively operable for connecting said further rated value storage means (18) with said comparator circuitry for controlling the input dose rate supplied to said x-ray intensifier-TV chain in accordance with said preprogrammed fixed rated value, such that the patient can be positioned with the assistance of a visual observation of an x-ray generated image of the patient with minimal radiation exposure of the patient.

4,335,311
X-RAY DIAGNOSTIC APPARATUS WITH AN IMAGE-INTENSIFIER TV CHAIN

Herbert Lutz, Seukendorf, and Rolf Pfeifer, Erlangen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 969,193, Dec. 13, 1978, abandoned.
This application 1980, Ser. No. 164,053
Claims priority, application Fed. Rep. of Germany, 1978, 2803913
Int. Cl.³ H05G *1/30*
U.S. Cl. 250—409 **1 Claim**

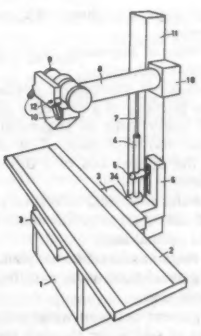


1. An x-ray diagnostic apparatus comprising:
(a) an x-ray source,
(b) an x-ray high voltage generator for energizing said x-ray source to produce an x-ray beam with an input x-ray dose rate of adjustable value,
(c) an x-ray image intensifier-TV chain comprising an x-ray image intensifier requiring an input x-ray dose rate above a predetermined value to provide an image quality suitable for medical diagnostic purposes,
(d) dose rate sensing means for supplying an actual value signal in accordance with the actual value of the input x-ray dose rate supplied by said x-ray source to said x-ray image intensifier-TV chain, and
(e) control means comprising comparator circuitry for connection with said x-ray high voltage generator for controlling the input x-ray dose rate to said x-ray image intensifier-TV chain and thus for controlling the mean brightness of the output from the x-ray image intensifier,
(f) said control means comprising a plurality of rated value

4,335,312
COUPLING BAR FOR X-RAY TOMOGRAPHY APPARATUS

Volker Onken, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed 1980, Ser. No. 165,176
Claims priority, application Fed. Rep. of Germany, 1979, 2927380
Int. Cl.³ G03B *41/16*
U.S. Cl. 250—445 T **3 Claims**



1. An X-ray examination apparatus comprising:
a patient table;
a supporting arm, extending in a horizontal direction, movable over the patient table in a plane which extends in a horizontal direction;
an X-ray source mounted on the supporting arm;
an image recording device movable underneath the patient table in a plane which extends in a horizontal direction; and
a coupling device having two parts, one part being connected to the image recording device and the other part being detachably connected to the supporting arm, said coupling device being rotatable around a horizontal axis, said two parts being telescopically movable with respect to each other;
characterized in that:
the coupling device comprises a coupling rod having a first

end and a second end, said first end being detachably connected to the supporting arm; and

the apparatus further comprises:

a blocking device, mounted on the supporting arm, for engaging the first end of the coupling rod, said blocking device disengaging the first end of the coupling rod whenever the first end moves upward with respect thereto;

an abutment, positioned so that when the supporting arm and coupling rod connected thereto are moved downward, the second end of the coupling rod bears on the abutment so that the first end of the coupling rod moves upward with respect to the supporting arm; and

a manually operable latch device for maintaining the blocking device in a disengaged state after the blocking device is disengaged from the first end of the coupling rod.

4,335,313

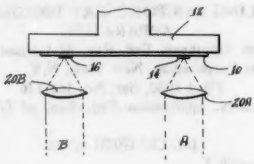
METHOD AND APPARATUS FOR ALIGNING AN OPAQUE MASK WITH AN INTEGRATED CIRCUIT WAFER

Justin L. Kreuzer, Trumbull, and David H. Kittell, Stamford, both of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed 1980, Ser. No. 149,106

Int. Cl.³ G01N *21/00, 23/00*

U.S. Cl. 250—491 **13 Claims**



1. The method of aligning a lithographic mask to a substrate wafer which comprises:

providing a plurality of alignment targets on one surface of each of said mask and wafer;

providing a plurality of microscope optical channels positioned to view portions of a reference plane;

positioning said wafer with its alignment surface in said reference plane and with each of its alignment targets aligned with the optical axis of a different one of said optical channels;

displacing said wafer from said reference plane to an exposure plane parallel thereto while retaining its alignment relative to said optical axes;

positioning said mask in said reference plane with each of its alignment targets aligned with a different one of said optical channels; and

retaining the alignment between wafer and mask for subsequent exposure of said wafer through said mask.

4,335,314

GENERATOR FOR PULSED ELECTRON BEAMS

Jochen Geerk, Stutensee, and Fritz Ratzel, Linkenheim-Hochstetten, both of Fed. Rep. of Germany, assignors to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

Filed 1980, Ser. No. 175,833

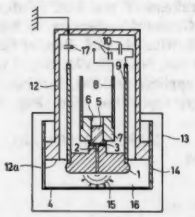
Claims priority, application Fed. Rep. of Germany, 1980, 3014151

Int. Cl.³ H01J *3/00*

U.S. Cl. 250—492.3 **11 Claims**

1. In a generator for pulsed electron beams including: a vacuum chamber; a sample carrier for receiving a sample to be subjected to accelerated electron radiation mounted in said vacuum chamber; spaced cathode and anode electrodes for emitting charge carriers and for accelerating charge carriers mounted in said vacuum chamber with said anode electrode being disposed between said cathode electrode and said sample carrier; a first high voltage capacitor connected between said cathode electrode and said anode electrode to serve as the energy source for a high voltage discharge, particularly for a metal vapor discharge between said cathode and anode electrodes, and means for generating an auxiliary discharge which initiates the discharge process between said cathode and anode electrodes, said means including a trigger electrode mounted in said vacuum chamber adjacent to and coaxial with said cathode electrode on the side of same opposite said anode electrode, and a second high voltage capacitor, which serves as a voltage source for the auxiliary discharge, connected between said cathode electrode and said trigger electrode by means of a normally open switch; the improvement further comprising a first protective metal tube which is connected to ground potential, is closed at one end and has its other end extending into said vacuum chamber in a vacuum tight manner to approximately the level of said cathode electrode, a second metal tube disposed within and coaxial with said first tube, and a metal conductor disposed within said coaxial with said second tube; and wherein:

the distance between said cathode electrode and said trigger electrode is such that when said second capacitor is connected between same by closing of said switch, a sparkover is produced between said trigger electrode and said cathode electrode and causes a trigger plasma to be formed which initiates said high voltage discharge between said cathode and anode electrodes; said cathode electrode is mounted on one end of said second tube in an electrically conductive manner and has a central bore through which the trigger plasma can exit into the discharge chamber formed between said cathode and anode electrodes; said trigger electrode is mounted on the end of said metal conductor which faces said cathode electrode in an electrically conductive manner; said anode electrode is mounted on said other end of said first tube in an electrically conductive manner and is a metal network which is highly transparent to electrons and through which fly the electrons which have been accelerated by means of the electric field existing between said cathode and anode electrodes due to the voltage of said first capacitor applied therebetween; said first capacitor has one terminal conductively connected to said one end of said first tube and its other terminal conductively connected to the other end of said second tube; and said second capacitor has one terminal conductively connected to said second tube and its other terminal connected via said switch to said metal conductor.

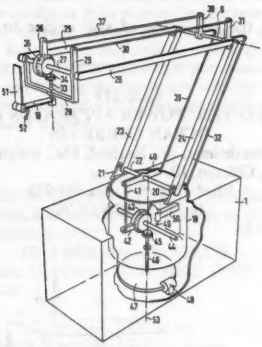


4,335,315

X-RAY EXAMINATION APPARATUS

Hans Waerve, Sollentuna, and Sten Djurson, Stockholm, both of Sweden, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Division of Ser. No. 942,413, Sep. 14, 1978, Pat. No. 4,223,230.
This application 1980, Ser. No. 112,337
Claims priority, application Fed. Rep. of Germany, 1977, 2745883
Int. Cl.³ H01J *35/16*
U.S. Cl. 250—523 5 Claims



1. In an x-ray apparatus with a base and a two-part articulated support means, each part of the articulated support means includes a rigid elongated member with a first rigid elongated member pivotably connected at a first end by a connection means to the base for rotation about a vertical axis and for rotation about a first horizontal axis, a second end of the first member is pivotably connected to a first end of a second member for rotation about a second horizontal axis, parallel to the first axis, a second end of the second member is connected to an x-ray tube support means, the x-ray tube support means is movable vertically and horizontally with respect to the base, an improvement comprising:

linkage means,

first and second rotation sensing means;

said first rotation sensing means is mounted within the base, and is connected to the base, the connection means and said linkage means;

said first rotation sensing means senses rotation of the first elongated member about the vertical axis and transmits a measure of the sensed rotation to said linkage means;

said second rotation sensing means is connected to the x-ray tube support means, the second end of the second member and said linkage means;

said second rotation sensing means senses the measure of sensed rotation transmitted by said first rotation sensing means to said linkage means and rotates the x-ray tube support means with respect to the second end of the second rigid elongated member such that an x-ray tube supported thereon maintains a constant angular position with respect to the base as the first rigid elongated member is rotated about the vertical axis.

4,335,316

WEB BREAK DETECTOR WITH ADJUSTABLE SCANNING HEAD

Richard Glanz, Crystal Lake, and Sun C. Chang, Naperville, both of Ill., assignors to Baldwin-Korthe Web Controls, Inc., Addison, Ill.

Filed 1980, Ser. No. 138,499
Int. Cl.³ G01N *21/88*
U.S. Cl. 250—572 17 Claims

1. A system for signalling the occurrence of discontinuities in a moving web in a printing press or the like wherein the web position perpendicular to its direction of travel varies within a predetermined range, comprising:

a radiation source positioned and aimed so that its beam intersects the web path;

means for activating said radiation source at a predetermined pulse frequency such that its beam intersects said web path in a pulsating manner;

optical receiver means positioned to receive at least a portion of the beam reflected from said radiation source so long as the web is within said predetermined lateral range and adapted to produce an electrical output signal which varies in accordance with the received radiation;

frequency detector means coupled to said receiver means for producing an output signal indicative of the presence of said predetermined frequency in the frequency spectrum of said receiver output signal; and,

means responsive to said detector output for instantaneously manifesting the occurrence of a web break whenever said predetermined frequency is not present in the spectrum of said receiver output signal.

4,335,317

CIRCUIT FOR SENSOR-CONTROLLED TELEMETRY

Hans-Peter Grassl, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 173,195
Claims priority, application Fed. Rep. of Germany, 1979, 2936521
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—578 11 Claims

1. A circuit for sensor-controlled telemetry for use with a post-connected output device for converting signals from said circuit into signals operational for range indication or for range adjustment, said circuit comprising:

two linear image sensors each having a plurality of opto-electronic sensor elements for generating charge carriers

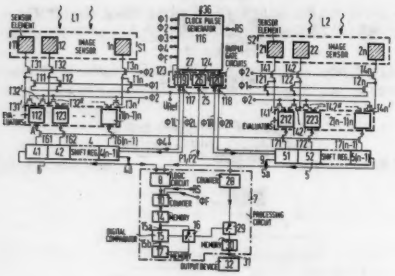
and a corresponding potential in an amount proportional to radiation incident on said sensor elements,

corresponding lines of two separately obtained imagings of an object being respectively projected onto said image sensors;

a group of evaluators associated with each image sensor, each evaluator having a pair of inputs individually connected to the respective outputs of two closely disposed sensor elements,

said evaluators being digital comparators switchable at an output between two digital logic stages as a function of a comparison of the amounts of charge carriers generated by the sensors connected thereto;

a plurality of gate-controlled switching transistors interconnected between said sensors and said evaluators for controlling an integration time during which charge carriers are collected in said sensor elements;



at least two shift registers having stages respectively post-connected to each said group of evaluators associated with each image sensor;

each said shift register shifting the information contained therein a pre-determined number of times during a readout cycle; and

a processing stage post-connected to each shift register including a counter and associated logic circuitry for counting the number of coincident digital signals from said shift registers after each shift of information therein and determining therefrom a maximum position correlation of said signals from said image sensors, and having an output from which the maximum correlation is supplied to said output device.

4,335,318

ENGINE-DRIVEN MODEL TOY

Kenichi Mabuchi, and Tatsuo Katsunuma, both of Matsudo, Japan, assignors to Mabuchi Motor Co., Ltd., Japan

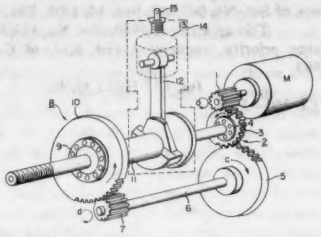
Filed 1980, Ser. No. 135,996

Claims priority, application Japan, 1979, 54-50442; 1979, 54-66624[U]

Int. Cl.³ A63H *27/14*

U.S. Cl. 290—31 **11 Claims**

1. An engine-driven model toy airplane flown by at least one propeller and having an engine drivingly coupled to said propeller, an electric motor connected to said engine and a power source battery, and characterized in that said engine is connected to said electric motor by means of a transmission mechanism capable of changing the ratio of revolution between said engine and said electric motor to predetermined values as required, respectively, by the starting and continuous operation modes of said engine, and in that said electric motor is capable of starting said engine by receiving the power of said battery at the starting mode of operation of said engine, and charging said battery during the continuous mode of operation of said engine by receiving the revolution of said engine to operate as a dynamo.



4,335,319

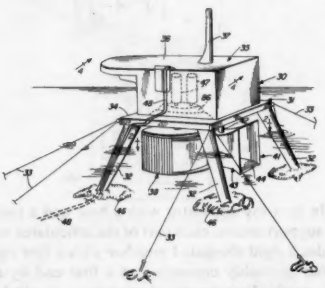
HYDRO-ELECTRIC POWER APPARATUS UTILIZING OCEAN CURRENTS

John H. Mettersheimer, Jr., Sanford, Fla., assignor to Charles B. Cannon, Chicago, Ill.

Filed 1980, Ser. No. 181,718

Int. Cl.³ F03B *13/10*

U.S. Cl. 290—54 **13 Claims**



1. Hydro-electric power generating apparatus for utilization of the hydraulic force of ocean or other water currents for driving a hydraulic turbine and an electrical generator operated thereby for generating electrical power comprising:

(a) a combination supporting platform and housing having therein

(1) an electrical generator;

(b) means for securing the said combination supporting platform and housing above the surface of an ocean or other body of water;

(c) a hydraulic turbine disposed below the said combination supporting platform and submergible in the said ocean or other body of water;

(d) mounting means for rotatably mounting the said hydraulic turbine on and suspending it below the said combination supporting platform and housing;

(e) electrical generator driving means coacting with the said hydraulic turbine mounting means and with the said hydraulic turbine for driving the said electrical generator;

(f) a water intake or inlet nozzle suspended from the said combination supporting platform and housing and submergible in the said body of ocean or other water and having

(1) an inlet for the intake of water from the water current in the area of the said body of water in which the said nozzle is submerged; and having

(2) a water outlet for directing the said water current from

the said nozzle into the said hydraulic turbine to rotate the said hydraulic turbine and the said electrical generator and thereby generate electrical power;

(g) means for suspending the said water intake or inlet nozzle from and below the said combination supporting platform and housing;

(h) means for transmitting the said electrical power from the said electrical generator to a point of use of the said electrical power;

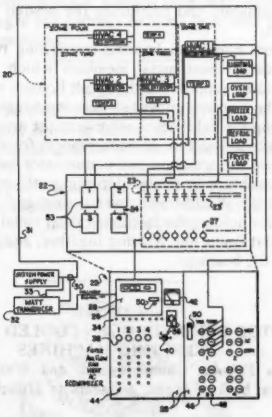
(i) water current flow direction and fluid velocity sensing means for sensing the direction of flow and the velocity of the water current in the area of the said body of water in which the said water intake or inlet nozzle is submerged having the maximum velocity and resulting hydraulic force; and

(j) means cooperating with the said water current flow direction and velocity sensing means for positioning the said water intake or inlet nozzle for the reception of the said water current having the maximum velocity and hydraulic force in the said area in which the said water intake or inlet nozzle is submerged and directing the said water current having the maximum velocity and hydraulic force from the said water intake or inlet nozzle into the said hydraulic turbine.

4,335,320
MULTI-ZONE ENERGY SUPPLY CONTROLLER

Thomas L. Garver, Kannapolis, N.C., assignor to W. A. Brown & Son, Inc., Salisbury, N.C.

Filed 1980, Ser. No. 121,158
Int. Cl.[3] G05B *11/00;* H02J *13/00*
U.S. Cl. 307—39 **6 Claims**

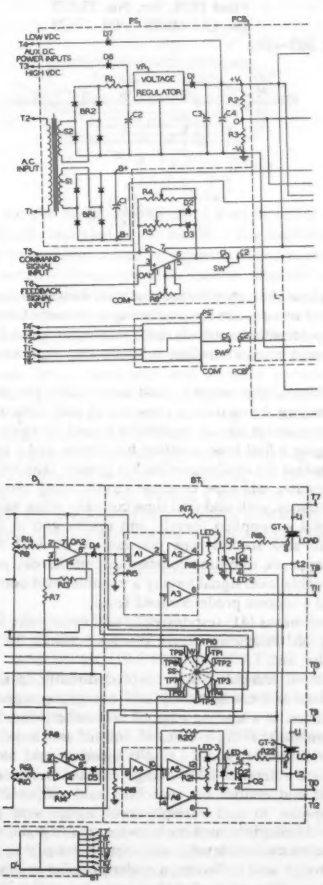


1. A controller for the power supply system of a structure having multiple zones therein with separate heating, ventilating and air-conditioning apparatus for individual zones, said structure having other separate apparatus associated therewith and having means at said controller for automatically selectively controlling the availability for operation of individual elements of said separate apparatus on power demand and time bases, wherein the improvement comprises means at said controller for selectively overriding said availability controlling means for selectively allowing individual elements of said separate apparatus to be available to operate independent of said controlling on said time bases, means associated with said separate apparatus for individually monitoring environmental conditions in at least some of said zones, means responsive to said monitoring means and connected thereto for causing the corresponding separate apparatus to operate during the existence of predetermined environmental conditions in a zone so monitored subject to said availability, selective means at said controller for determining and displaying the measure of said environmental conditions in a zone so monitored as sensed by said monitoring means, and said selective means at said controller comprises means for simultaneously for a selected zone (a) disconnecting said monitoring means from said responsive means, (b) connecting said monitoring means to said determining and displaying means for said determining and displaying said sensed environmental condition measure, and (c) connecting a dummy load to said responsive means while said monitoring means is so disconnected therefrom.

4,335,321
ELECTRONIC BALANCE CONTROL CIRCUIT ARRANGEMENT

Michael D. Lyons, and Richard A. Strobel, both of Lexington, Ky., assignors to American Standard Inc., Lexington, Ky.

Filed 1979, Ser. No. 103,800
Int. Cl.[3] H03K *17/72, 5/153*
U.S. Cl. 307—252 B **14 Claims**



1. An electronic balance control circuit comprising, a comparator circuit having a command signal input and a feedback signal input and producing a positive, a negative, and a zero output in response to the comparative value of the feedback signal relative to the command signal, a first detector circuit

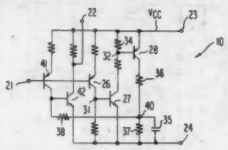
responsive to the positive output, a second detector responsive to the negative output, a first buffer trigger circuit coupled to said first detector circuit for actuating a first gate circuit which includes a gate controlled semiconductive switch when the feedback signal is less than the command signal to increase the feedback signal until said comparator circuit produces a zero output, and a second buffer trigger circuit coupled to said second detector circuit for actuating a second gate circuit which includes a gate controlled semiconductive switch when the feedback signal is greater than the command signal to decrease the feedback signal until said comparator circuit produces a zero output.

4,335,322

PULSE GENERATOR FOR PRODUCING A PULSE HAVING A PULSE WIDTH DEPENDENT ON AN INPUT SIGNAL

Kouichi Tanaka, Tokyo, and Masaharu Mori, Warabi, both of Japan, assignors to Nippon Electric Co., Ltd. and Clarion Co., Ltd., both of Tokyo, Japan

Filed 1979, Ser. No. 75,872
Int. Cl.³ H03K *5/00, 17/28*
U.S. Cl. 307—542 **7 Claims**



1. A pulse generator for use in a noise canceller responsive to a variable noise pulse for producing a corresponding variable output pulse simultaneously with said input pulse for application to said noise canceller, wherein the improvement comprises:

first means responsive to said noise pulse for producing a charging signal during presence of said noise pulse;

a time constant circuit responsive to said charging signal and having a first time constant for charge and a second time constant for discharge which is greater than said first time constant, said time constant circuit being charged in accordance with said first time constant when said charging signal is supplied thereto and discharged in accordance with said second time constant when said noise pulse disappears, said time constant circuit thereby producing a variable level signal having a variable level between a first and a second predetermined level;

second means (41) responsive to said noise pulse for producing an energizing signal during presence of said noise pulse; and

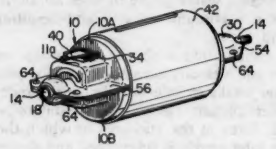
an output transistor (42) coupled directly to said second means and energized by said energizing signal in timed relation to a leading edge of said noise pulse, said output transistor having a base, an emitter and a collector, said variable level signal being coupled to said base a determined reference level being provided between said base and said emitter for switching said output transistor in response to said variable level signal, said preselected level being intermediate between said first and said second predetermined levels, said output transistor producing, through said collector, a widened pulse in timed relation to a trailing edge of said noise pulse, said widened pulse being wider than said noise pulse in pulse width and lasting until said variable level becomes equal to said preselected level during the discharge of said time constant circuit, wherein a trailing edge of said widened pulse occurs a predetermined fixed time after said trailing edge of said noise pulse.

4,335,323

STAMPED SHEET METAL FRAME FOR DYNAMOELECTRIC MACHINE

Earl R. Kebbon, Farmington, Me.; Bobby E. McMillen, Columbus, Miss.; Kenneth W. Stewart, Sr., Columbus, Miss., and Dennis A. Bloodworth, Jr., Columbus, Miss., assignors to AMBAC Industries, Incorporated, Farmington, Conn.

Filed 1980, Ser. No. 113,078
Int. Cl.³ H02K *5/00*
U.S. Cl. 310—40 R **23 Claims**



1. A dynamoelectric machine comprising:

an armature, including a winding on an iron core supported on a rotatable shaft, said winding being connected to a commutator supported on the shaft;

first and second bearings in which the shaft is journaled;

brush holders containing brushes for contacting the commutator, resilient means to urge the brushes into the commutator and means to provide electrical contact and connection with the brushes;

permanent magnet field means conforming to the shape of the armature for generating a magnetic field interlinking the armature and producing the desired dynamoelectric effect;

a support frame and housing comprising two cooperating fabricated sheet metal members which includes means providing support for the brush holders to be in position for the brushes to contact the commutator and for supporting the field means relative to the armature and when assembled together provide support for the bearings and enclose the armature and commutator and which permit the brushes to be mounted to engage the commutator after assembly of said frame and housing; and

means for holding the fabricated sheet metal members of the support frame and housing together, and, in turn, to support the bearings.

4,335,324

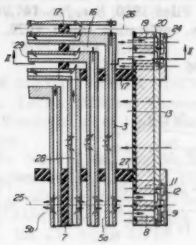
ROTOR FOR HYDROGEN-COOLED ROTARY ELECTRIC MACHINES

Kazumasa Fujioka, Shimoinayoshi, and Wataru Nakayama, Kashiwa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 175,699
Claims priority, application Japan, 1979, 54-100261
Int. Cl.³ H02K *1/32*
U.S. Cl. 310—61 **1 Claim**

1. In a rotor for hydrogen-cooled rotary electric machines including a rotor shaft, a retaining ring for holding laminated windings in position, a center ring secured to said retaining ring, radially extending partition walls, gas inlet and outlet chambers disposed in a region between said rotor shaft and retaining ring and circumferentially partitioned by said center ring and radially extending partition walls, and a plurality of fan-like ventilating means provided on the outer side of the rotor end for discharging outside of the rotor gases which have been introduced from said gas inlet chamber to the laminated windings for the cooling of the same and flowed into said gas outlet chamber, the improvement comprising circumferentially extending partition walls; L-shaped insulating spacers; said gas outlet chamber being divided into first and second zones each located near the polar axis and a third zone located

near the interpolar axis by means of said circumferentially extending partition walls, radially extending partition walls and said L-shaped insulating spacers; said plurality of fan-like ventilating means including first fan-like ventilating means disposed on the outer side of said center ring and communicated with the first zone of the gas outlet chamber through first axially extending passages provided on the outer periphery of said center ring, second fan-like ventilating means disposed on the outer side of said center ring and communicated with the second zone of the gas outlet chamber through second axially



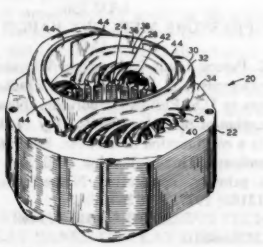
extending passages provided below said center ring, third fan-like ventilating means disposed on the outer side of said center ring and communicated with the third zone of the gas outlet chamber through third axially extending passages on the outer periphery of said center ring and fourth axially extending passages on the periphery of said center ring, and fourth fan-like ventilating means; said gas inlet chamber communicated with gas inlet ports through fifth axially extending passages which are circumferentially isolated from said second axially extending passages and radially isolated from said fourth axially extending passages.

4,335,325

DYNAMOELECTRIC MACHINE STATOR ASSEMBLY

Sammy L. Miller, Bowling Green, Ky., and Alan L. Kindig, Holland, Mich., assignors to General Electric Company, Fort Wayne, Ind.

Division of Ser. No. 918,055, Jun. 22, 1978, Pat. No. 4,216,571. This application 1980, Ser. No. 140,739
Int. Cl.³ H02K *3/48*
U.S. Cl. 310—214 **3 Claims**



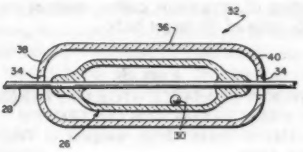
1. A dynamoelectric machine stator assembly comprising: a core having faces, a longitudinally extending bore. and a plurality of longitudinally extending slots disposed radially around and opening into the bore; at least two windings, each having side turns thereof disposed within selected slots of the core and end turns thereof disposed about the faces of the core; and a plurality of phase insulators having end turn insulating portions disposed between the end turns of the at least two windings and having at least two connectors extending through slots of the core; said end turn insulating portions of the plurality of phase insulators also being disposed in an overlapping pinwheel configuration about at least one face of the core with overlapping portions of the insulators being sandwiched between portions of end turns of the at least two windings, whereby one part of each of the end turn insulating portions lies radially inwardly, relative to the bore, of the end turn insulating portion of a first adjacent phase insulator and another part of each of the end turn insulating portions lies radially outwardly, relative to the bore, of the end turn insulating portion of a second adjacent phase insulator.

4,335,326

MERCURY DISPENSER FOR DISCHARGE LAMPS

Frank M. Latassa, Magnolia; John G. Ray, Topsfield, and Joseph A. Roy, Danvers, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed 1980, Ser. No. 142,904
Int. Cl.³ H01J *61/28*
U.S. Cl. 313—177 **6 Claims**



1. In an arc discharge lamp having a glass mount at one end with a cathode supported on the mount, a disintegration shield encircling the cathode except for a gap between the ends of the shield, a mercury containing glass capsule disposed at about the gap region of said disintegration shield, said mercury containing capsule having an axially disposed wire sealed therein, said wire having protruding ends, each end of said wire being connected to a respective side of said disintegration shield, said glass capsule being rupturable and forming particles upon receipt of energy from a source external of said lamp to release said mercury and establish a mercury vapor pressure in said lamp, the improvement comprising: a particle shield for containing said particles from said capsule surrounding said glass capsule and containing at least one opening for the release of said mercury, said opening having a diameter substantially smaller than the diameter of said mercury containing capsule whereby said particles are retained within said particle shield.

4,335,327

X-RAY TUBE TARGET HAVING PYROLYTIC AMORPHOUS CARBON COATING

John S. Waugh, Wellesley, Mass., and Richard G. Weber, Stamford, Conn., assignors to The Machlett Laboratories, Incorporated, Stamford, Conn.

Continuation of Ser. No. 965,764, Dec. 4, 1978, abandoned. This application 1980, Ser. No. 141,525
Int. Cl.³ H01J *35/08*
U.S. Cl. 313—330 **11 Claims**

1. An X-ray target comprising:

a body having a first surface portion made of X-ray emissive material and a second surface portion coated with pyrolytic amorphous carbon material.

11. A method for providing an X-ray target body with a heat emissive coating of amorphous carbon material and comprising the steps of:

masking one or more surface areas of the target body;

placing the target body in a furnace chamber;

heating the target body to a temperature greater than twelve

hundred degrees Centigrade and less than eighteen hundred degrees Centigrade; and

flowing a carbonaceous gas over the target body to produce a coating of amorphous carbon material on unmasked surface areas of the target body.

4,335,328

SELECTIVELY ERASABLE STORAGE TARGET WITH INSULATED WEB COLLECTOR

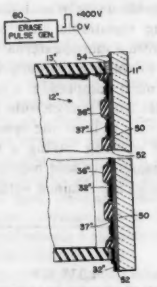
Duane A. Haven, Banks, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation-in-part of Ser. No. 42,172, May 24, 1979, abandoned, which is a continuation-in-part of Ser. No. 6,146, Jan. 24, 1979, abandoned. This application 1981, Ser. No. 236,489

The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ H01J *29/39, 31/08*

U.S. Cl. 313—395 **12 Claims**



1. A bistable storage target for a cathode-ray tube, comprising

an electrically conductive layer forming a first electrode,

a first layer of electrically insulative material having a support surface,

a second, mesh electrode of conductive material disposed on said support surface, said electrode being substantially insulated from said first electrode and including a first pattern of openings,

a storage component of secondary electron emissive material in contact with said support surface, said component comprising a multiplicity of spaced deposits of such material within the openings of said first pattern, and

a second layer of insulating material overlying said mesh electrode, said second layer including a second pattern of openings substantially in register with said first pattern, the individual openings of said second pattern being smaller in size than corresponding openings of said first pattern, with portions of said second insulating layer engaging regions of said support surface surrounding said deposits of storage material and insulating them from said mesh electrode.

4,335,329

MASK SUPPORT FOR SHADOW MASK ASSEMBLY

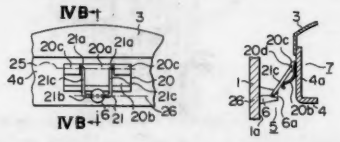
Kenichi Fukuzawa, Mobara, and Tetsuo Kumazawa, Dejimamura, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 147,962

Claims priority, application Japan, 1979, 54-60438

Int. Cl.³ H01J *29/07*

U.S. Cl. 313—406 **8 Claims**



1. A support arrangement including a multiplicity of retainers for supporting a shadow mask assembly at predetermined positions inside the tube envelope of a color picture tube, said shadow mask assembly consisting of a shadow mask disposed in facing relationship to a fluorescent screen of the tube and in a plane perpendicular to the axis of the tube envelope and a frame having side walls facing internal surfaces of the tube envelope which are substantially parallel to said tube axis for holding said shadow mask, each of said retainers comprising:

a spring member secured on the side wall of said frame, having a fixed axis extending in a predetermined direction parallel to said side wall surface and in a plane perpendicular to said tube axis, and having a portion biased to provide a pivotal force about said fixed axis;

a fixed member securely provided on the internal surface of said tube envelope; and

a rigid member with one end thereof being attached to said spring member and another end thereof engaging said fixed member, said rigid member being pivotally displaceable towards said internal surface of said tube envelope about said fixed axis by means of said pivotal force.

4,335,330

LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP

Robert C. Peters; Louis E. Vrenken; Winston D. Couvbenberg, and Franciscus A. S. Ligthart, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 38,616, May 14, 1979, abandoned, which is a continuation of Ser. No. 845,926, Oct. 27, 1977, abandoned. This application 1980, Ser. No. 120,602

Claims priority, application Netherlands, 1976, 7612157; 1976, 7612158; 1977, 7709263

Int. Cl.³ H01J *61/44*

U.S. Cl. 313—486 **7 Claims**

1. A low-pressure mercury vapour discharge lamp having a vacuum-tight, radiation-transmissive envelope, provided with a luminescent layer and a gas filling comprising mercury and a rare gas wherein mercury radiation at 254 nm is generated, and furthermore provided with means for maintaining a column discharge in the gas filling, the power consumed by the column

being at least 500 W per m^2 surface area of the luminescent layer, characterized in that the luminesent layer contains a luminescent material which has the property of having a 254 nm-excitation a luminous flux which, after the material has been subjected for 15 minutes to ultraviolet radiation of a wavelength of mainly 185 and 254 nm and a radiation density between 150 and 500 W/m^2 and a ratio of 185 nm power to 254 nm power between 0.20 and 0.40, is not more than 5% lower than the initial luminous flux of the material also at 254 nm excitation and measured under identical circumstances, and in that the combination of cations in the luminescent material has an electronegativity of not more than 1.4.

4,335,331

LOW PRESSURE METAL VAPOR DISCHARGE LAMP

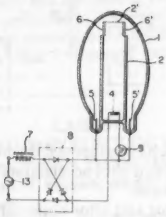
Yoshio Watanabe, Tokyo; Mikiya Yamane, and Teruichi Tomura, both of Kunitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 932,546, Aug. 10, 1978, abandoned. This application 1980, Ser. No. 158,264

Claims priority, application Japan, 1977, 52-95041; 1977, 52-115622; 1977, 52-115623; 1977, 52-115624

Int. Cl.³ H05B *41/16*

U.S. Cl. 315—334 **18 Claims**



1. A low pressure metal vapor discharge lamp comprising:

an outer glass envelope defining an enclosed discharge space;

an inner glass tube disposed within said outer glass envelope, said tube being open at one end thereof and closed at the other end thereof;

a single cathode disposed in said inner glass tube;

a plurality of anodes disposed in said outer glass envelope outside said inner glass tube;

circuit means for simultaneously applying the same voltage to all of said anodes at a value above the voltage value of said cathode, said circuit means including ballast means in the form of a single ballast having one end which is commonly connected in series with all of said anodes for effecting self-excitation switching between said anodes so as to form a plurality of discharge plasmas in said discharge space.

4,335,332

FOCUS MESH STRUCTURE AND BIASING TECHNIQUE FOR FLAT PANEL DISPLAY DEVICES

Thomas L. Credelle, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

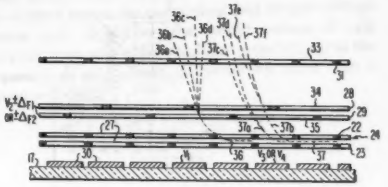
Filed 1981, Ser. No. 230,362

Int. Cl.³ H01J *29/70, 29/72*

U.S. Cl. 315—366 **7 Claims**

1. In a flat panel display device having a display area where the sequential impingement of electrons along successive lines effects a visual display, and including a beam guide structure having electron beam propagation means for propagating at least one electron beam along paths substantially parallel to said display area, and having means for focusing electron beams traveling toward said display area, said display device also including extraction means arranged substantially perpendicular to said beam propagation means and substantially parallel to said successive lines for repelling said at least one electron beam from said beam propagation means toward said display area for scanning along said lines, an improvement wherein

said means for focusing includes a plurality of apertured focus meshes arranged in a spaced and parallel relationship with respect to one another and with respect to said electron beam propagation means, each of said focus



meshes including apertures arranged in at least one column along the length of said meshes and in the direction of electron beam propagation, the apertures in the respective focus meshes being off set in the direction of electron beam propagation, said extraction means including a plurality of extraction electrodes extending along one dimension of said display area and perpendicular to said at least one column.

4,335,333

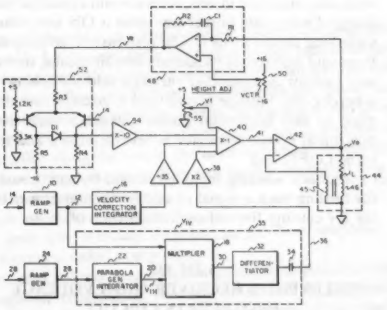
RASTER SCAN COLOR DISPLAY SYSTEM AND METHOD HAVING IMPROVED PIN CUSHION NON-LINEARITY CORRECTION

Michael Ramsay, San Jose, Calif., and Warren Pratt, Loveland, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed 1980, Ser. No. 116,421

Int. Cl.³ H01J *29/70*

U.S. Cl. 315—371 **11 Claims**



6. Deflection apparatus for a display system having a first deflection scanning rate in a first direction and a second deflection scanning rate in a second direction comprising:

first means for producing a parabolic signal having a repetition rate at the first deflection scanning rate;

second means for producing a ramp signal having a repetition rate at the second deflection scanning rate;

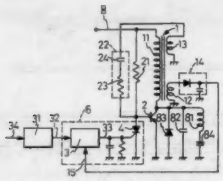
third means coupled to the first means and the second means for multiplying the parabolic signal and the ramp signal and producing the product as an output; and

fourth means coupled to the third means for differentiating the third means output and producing a second direction deflection signal.

4,335,334
HORIZONTAL SCANNING CIRCUIT

Nobukazu Hosoya, Nara, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan

Filed 1980, Ser. No. 188,149
Claims priority, application Japan, 1979, 54-122442; 1980, 55-123602[U]
Int. Cl.³ H01J 29/70, 29/76
U.S. Cl. 315—408 **5 Claims**



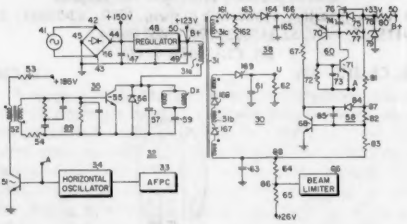
1. A horizontal scanning circuit comprising:
(a) a flyback transformer;
(b) a horizontal scanning coil connected to said flyback transformer;
(c) a power transistor connected to said flyback transformer and said horizontal scanning coil for controlling the current flow therethrough;
(d) control circuit means connected to said power transistor for controlling the control current thereto, wherein said control circuit means provides a pulse signal for switching said power transistor between ON and OFF states at a frequency f_H which is higher than f_0, the natural frequency of said scanning circuit, said control circuit means comprising a horizontal oscillation circuit means for varying the frequency f_H in response to a control signal applied thereto, a switching means having a control input connected to the output of said horizontal oscillation circuit means and one electrode thereof connected to ground, a capacitor means having one side thereof connected to said switching means and the other side thereof connected to said power transistor, and a resistor connected in parallel with said capacitor means, wherein said capacitor means is charged when said power transistor is ON and, when said switching means turns ON in response to an output pulse from said horizontal oscillation circuit means, one side of said resistor is grounded through said switching means whereby the voltage across said capacitor means is applied to said horizontal power transistor such that said horizontal power transistor is reverse biased and thereby turned OFF; and
(e) a feedback winding included in said flyback transformer for feeding back a signal to said horizontal power transistor for causing the self-oscillation thereof.

4,335,335
TELEVISION RECEIVER HIGH VOLTAGE PROTECTION CIRCUIT

Donald H. Willis, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 120,473
Int. Cl.³ H01J 29/80
U.S. Cl. 315—411 **15 Claims**

1. A high voltage generation circuit with high voltage protection for a television display system requiring an ultor accelerating potential and drawing ultor beam current from said high voltage generation circuit, comprising:
a high voltage generator responsive to an alternating current voltage for developing said ultor accelerating potential at an output terminal of said generator;
means coupled to said high voltage generator for developing a signal representative of said ultor accelerating potential;
means responsive to said ultor beam current for developing a signal representative of said ultor beam current;
a comparator;
means coupled to an output terminal of said comparator for developing a disabling signal when energized by said comparator;
means coupled to said disabling signal developing means for applying said disabling signal to said television display system such that an abnormal television display is produced when said disabling signal developing means is energized;
means for applying a reference voltage to an input terminal of said comparator;
means for applying said ultor beam current representative signal to an input terminal of said comparator; and
means for applying said ultor accelerating potential representative signal to an input terminal of said comparator for developing an output signal at said output terminal of said



comparator which energizes said disabling signal developing means when said ultor accelerating potential exceeds a predetermined value;
characterized in that said ultor beam current representative signal developing means comprises an amplifier having said ultor beam current representative signal developed at an output terminal of said amplifier, means for applying to an input terminal of said amplifier an input signal representative of ultor beam current, and means for biasing said amplifier into substantially linear operation for ultor beam current values within a substantial predetermined range for varying said predetermined value of ultor accelerating potential as said input signal varies and for biasing said amplifier into nonlinear operation for ultor beam current values without said predetermined range in order to develop said comparator output signal substantially independently of said predetermine value of ultor accelerating potential when said ultor beam current exceeds a set amount.

4,335,336
DEVICE FOR CONTROLLING SPEED

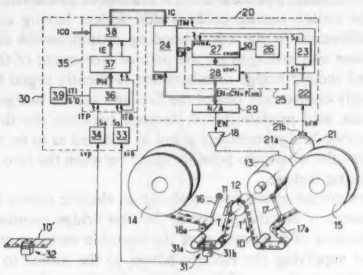
Fulvio Filippini, Versailles, France, assignor to Enertec, Montrouge, France

Filed 1980, Ser. No. 152,005
Claims priority, application France, 1979, 79 13211
Int. Cl.³ H02P 5/16
U.S. Cl. 318—6 **13 Claims**

1. A device for controlling the speed of rotation of a DC electric motor to a nominal speed VM, comprising:
(a) means for generating a measuring signal representative of the real speed vm of the motor;
(b) an operating circuit for receiving the measuring signal and for generating and supplying said motor with a DC drive signal having an operating value EN, comprising:
(i) means for storing a digital representative of a prepositioning value CN;
(ii) a function generator responsive to said measuring signal and said prepositioning value CN for calculating said operating value EN as the sum of said preposition-

ing value CN and of a single-valued and monotonic function f of said real speed vm of the motor; and

(iii) means, connected to the function generator for continuously calculating and modifying said prepositioning value CN as the difference between said operating value EN and a single-valued and monotonic function f of said nominal value VM; and



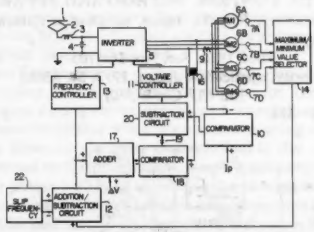
(c) a circuit for receiving said operating value EN from the function generator and for driving the motor with a current directly proportional to said operating value, whereby said real motor speed is continuously maintained at said nominal value VM despite variations in loading of said motor.

4,335,337

CONTROL SYSTEM FOR ELECTRIC MOTOR VEHICLE

Shigetoshi Okamatsu; Takashi Tsuboi; Masahiko Ibamoto, and Hiroshi Narita, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1979, Ser. No. 59,559
Claims priority, application Japan, 1978, 53-88454
Int. Cl.[3] B61C *15/08*
U.S. Cl. 318—52 **3 Claims**



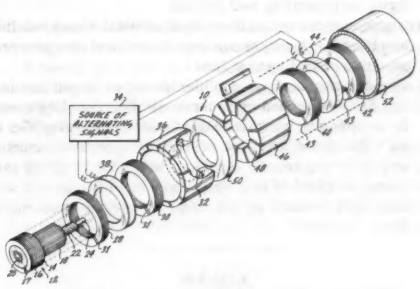
3. A control system for a vehicle driven by a plurality of induction motors, said system comprising: a power converter for producing and supplying to said induction motors a three-phase a.c. electric power of variable frequency and variable voltage; means for detecting individually the rotation speeds of at least two of said induction motors; means for selecting the minimum one or maximum one of the rotation speeds detected by said detecting means depending on whether the vehicle is in the power running mode or the regenerative braking mode, respectively; means for setting a slip frequency signal representing a predetermined slip frequency to be applied to said induction motors; adding/subtracting means for adding to said selected minimum rotation speed or subtracting from said selected maximum rotation speed the said slip frequency signal; frequency control means for controlling said power converter so as to cause said three-phase a.c. electric power produced by said power converter to have a frequency corresponding to the output of said adding/subtracting means; means for presetting a current command for current supplied to said induction motors; means for detecting current supplied to said induction motors; means for comparing the current represented by said preset current command with the current detected by said detecting means thereby to produce a current difference therebetween; means for controlling the output voltage of said power converter according to said current difference; first means connected to the output of said adding/subtracting means for producing a voltage proportional to the output frequency of said power converter and second means connected to said power converter, said first means and said output voltage control means for controlling said output voltage control means so as to prevent the output voltage of said power converter from exceeding a voltage proportional to the output frequency of said power converter by more than a predetermined voltage.

4,335,338

LINEAR MOTOR

Bruce A. Sawyer, Santa Rosa, Calif., assignor to Xynetics, Inc., Santa Clara, Calif.

Filed 1980, Ser. No. 164,827
Int. Cl.[3] B64C *13/18*
U.S. Cl. 318—135 **37 Claims**



1. In combination in a linear motor, a stator disposed axially to provide for magnetizable properties in alternate laminations and nonmagnetizable properties in the other laminations and to provide for a flow of magnetic flux through the stator, and

a head disposed annularly relative to the stator and in magnetically coupled relationship to the stator and movable axially along the stator, the head including magnet means providing a magnetic flux and further including first and second assemblies,

each assembly including:

at least one winding disposed to produce magnetic flux having a radial component,

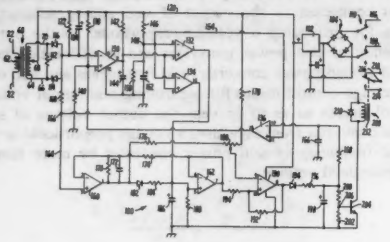
first and second magnetizable portions disposed in axially spaced relationship to each other and in magnetizable relationship to the stator and responsive to the magnetic flux produced by the winding and the magnetic flux from the magnet means for reinforcing, in one of the first and second magnetizable portions, the magnetic flux from the magnet means with the magnetic flux provided by the winding and for opposing, in the other one of the first and second magnetizable portions, the magnetic flux from the magnet means with the magnetic flux provided by the winding,

the first and second magnetizable portions in each assembly being disposed in a first phase relationship to each other and in a second phase relationship to the first and second magnetizable portions in the other assembly.

4,335,339
ELECTRONIC SAFETY DEVICE

Joseph L. Brickner, 2215 S. Grand Ave., Santa Ana, Calif. 92705

Filed 1979, Ser. No. 95,936
Int. Cl.³ E05F *15/10*; H02H *7/09*; H02P *3/00*
U.S. Cl. 318—282 **15 Claims**



3. A detector circuit for detecting abrupt changes in current drawn by an electrical device, comprising:

an operational amplifier having an output terminal and plural input terminals;

an isolation amplifier;

feedback means connecting an output terminal of said isolation amplifier with one of said input terminals;

input means for supplying to one of said input terminals a signal respresenting said current;

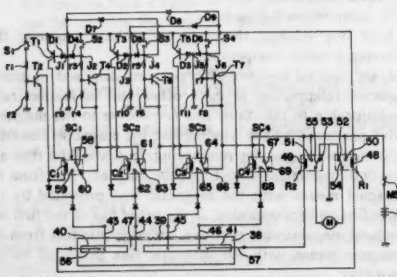
a capacitance connected to an input terminal of said isolation amplifier for storing an amount of electrical charge representative of said current; and

a comparator-connected amplifier having an output terminal and first and second input terminals, first coupling means for coupling an input terminal of said isolation amplifier to said first input terminal of said comparator-connected amplifier, and second coupling means for coupling said output terminal of said operational amplifier to said second input terminal of said comparator-connected amplifier.

4,335,340
ELECTRIC REVERSIBLE MOTOR CONTROL

Takanori Hara, Hiroshima, and Yoshihiro Shimamura, Kosai, both of Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima and ASMO Co., Ltd., Shizuoka, both of, Japan

Filed 1980, Ser. No. 192,838
Claims priority, application Japan, 1979, 54/130627
Int. Cl.³ H02P *1/00*
U.S. Cl. 318—282 **6 Claims**



1. A motor control apparatus comprising, in combination:

an electric reversible motor;

a movable member operatively coupled to the motor for movement in each of the opposite directions depending on the directon of rotation of the motor;

first and second electroconductive bridge members carried by the movable member for movement together therewith, said first and second bridge members being spaced at a predetermined distance from each other to define an electrically insulating region therebetween;

a plurality of electric switch means;

electroconductive feelers equal in number to the number of the switch means, each of said feelers having one end connected to the corresponding switch means and the other end arranged on the path of movement of the first and second bridge members and resiliently urged to slidingly contact any one of the first and second bridge members, said predetermined distance between the first and second bridge members being so selected as to be smaller than the maximum possible space between the two neighboring feelers;

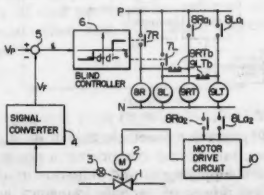
a first circuit means for supplying an electric power from a source of electric power to the first bridge member irrespective of the position of the movable member and also for supplying the electric power to the motor to rotate said motor in one of the opposite directions when said first circuit means is electrically energized; and

a second circuit means for supplying the electric power from the power source to the second bridge member irrespective of the position of the movable member and also for supplying the electric power to the motor to rotate said motor in the other of the opposite directions when said second circuit means is electrically energized, whereby when a selected one of the switch means is closed, said first and second circuit means are energized one at a time in the event that said selected switch means so closed is connected to the first circuit means through the first bridge member and in the event that said selected switch means so closed is connected to the second circuit means through the second bridge member, respectively.

4,335,341
AUTOMATIC CONTROL METHOD AND APPARATUS

Hitoshi Ogasawara, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 166,703
Claims priority, application Japan, 1979, 54/85005
Int. Cl.³ G05B *5/01*
U.S. Cl. 318—624 **6 Claims**



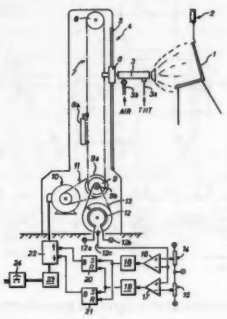
1. An automatic control apparatus for controlling an object to be controlled in a closed control loop, comprising comparing means for comparing a controlled quantity of said object with a set quantity, blind controller means to which the output from said comparing means is supplied and which has a dead zone, and operation holding means for allowing control operation of said object to be carried out continuously for a predetermined time when the output from said comparing means comes out beyond said dead zone, said control operation being continued even after the output from said comparing means falls again within said dead zone unless said predetermined time has elapsed.

4,335,342

RECIPROCATING DRIVE SYSTEM FOR A BODY SUCH AS A CARRIAGE SUPPORTING ELECTROSTATIC MEANS FOR SPRAYING A PULVERIZED MATERIAL, THE SYSTEM INCLUDING AN ASYNCHRONOUS SQUIRREL CAGE MOTOR

Roger Tholome, La Tronche, France, assignor to Air Industrie, Societe Anonyme, Courbevoie, France

Filed 1979, Ser. No. 105,526
Claims priority, application France, 1978, 78 36615
Int. Cl.[3] G05G 5/00
U.S. Cl. 318—627 9 Claims



1. A reciprocating drive system for moving a body of defined inertia, such as for example a carriage supporting electrostatic means for spraying a pulverized coating material, at full speed between two points at which the direction of movement is reversed, said drive system including:

an electric motor with polyphase stator windings and a squirrel cage rotor;

a stator phase switching system;

transducers responsive to the arrival of the moving body at the aforementioned points at which the direction of movement is reversed and producing output signals controlling said phase switching system to reverse the direction of rotation of the motor rotor so that the reversal of the motor torque reverses the direction of movement of the moving body at full speed within a given travel and within a given time interval; and

current limiting means of the type which provides a positive coupling in an operative condition for limiting stator current during motor startup, and no coupling in an inoperative condition when the motor is running at full speed; the drive system being characterised in that the motor is selected so that its nominal power is substantially equal to the power sufficient to reverse the moving body and the rotor coupled thereto, within said given time interval, and in that said current limiting means remains in the operative condition irrespective of the position of the moving body.

4,335,343

CIRCUIT FOR GENERATING AN ELECTRIC SIGNAL PROPORTIONAL TO A FLUX COMPONENT OF A ROTATING-FIELD MACHINE

Walter Dreiseitl; Dieter Köllensperger; Theodor Salzmann, all of Erlangen; Thomas Schlegel, Hemhofen, and Wolf-Dieter Weigel, Kleinsendelbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

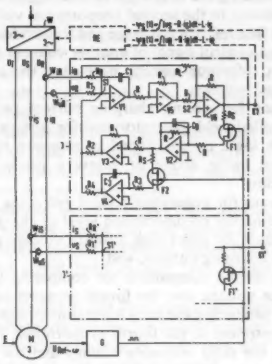
Filed 1979, Ser. No. 58,832
Claims priority, application Fed. Rep. of Germany, 1978, 2833593
Int. Cl.[3] H02P 5/28, 5/34
U.S. Cl. 318—798 8 Claims

1. An AC voltage integrating circuit, useful for forming an electric voltage signal proportional to a flux component in a rotating field machine from a voltage which is proportional to a Y voltage corresponding to the flux component and which contains a DC component, comprising:

an integrator having an input to which the voltage proportional to the Y voltage is fed and an output at which the signal voltage proportional to the flux component in the machine is taken off;

a summing point at the input of the integrator;

a zero-controller for suppressing the DC component comprising a P-controller and an I-controller, each having an output fed to the summing point and each having an input;



first means having a first input coupled to the output of the integrator, a second input to which a signal having a value between zero and one which is proportional to the frequency of the machine is coupled, and providing an output signal coupled to the P-controller which is proportional to the frequency of the machine; and

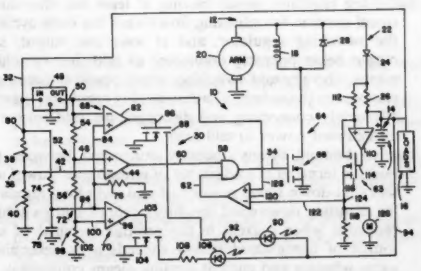
second means having a first input coupled to the output of the integrator and a second input to which the signal which is proportional to the frequency of the machine is coupled and providing a signal to the I-controller which is proportional to the square of the frequency of the machine.

4,335,344

VOLTAGE REGULATOR FOR A CONTROLLED FIELD GENERATOR

Leroy A. Gant, 521 Jasmine La., Santa Maria, Calif. 93454

Filed 1980, Ser. No. 183,184
Int. Cl.[3] H02J 7/14
U.S. Cl. 322—25 7 Claims



1. A voltage regulator for regulating a controlled field generator which generates current to charge an electrical storage device, the generator having a field winding, comprising:

(a) means for sensing the voltage of the electrical storage

device and for generating a first or second logic control signal in response to the voltage of the electrical storage device being above or below a predetermined level, respectively, including

(i) means for generating a first reference voltage representing the predetermined level of voltage of the electrical storage device,

(ii) means for generating a second voltage proportional to the voltage of the electrical storage device, and

(iii) a first comparator for comparing the first reference voltage and the second proportional voltage and for producing the first logic control signal of one value in response to the second proportional voltage exceeding the first reference voltage and for producing the second logic control signal of another value in response to the first reference voltage exceeding the second proportional voltage;

(b) means for sensing charging current produced by the controlled field generator and for generating a third or fourth logic control signal in response to the charging current being above or below a predetermined level, including

(i) means for generating a third reference voltage representing the predetermined level of charging current,

(ii) means for generating a fourth voltage proportional to the charging current, and

(iii) a second comparator for comparing the third reference voltage and the fourth proportional voltage and for producing the third logic control signal of one value in response to the fourth proportional voltage exceeding the third reference voltage and for producing the fourth logic control signal of another value in response to the third reference voltage exceeding the fourth proportional voltage;

(c) a control path having a transistor for controlling energization and deenergization of the field winding; and

(d) an AND gate having first and second inputs connected, respectively, to said first comparator and said second comparator, and an output connected to said transistor to control turning on and off said transistor.

4,335,345

CURRENT LIMITING CIRCUIT FOR SWITCHING REGULATOR

Merle E. Converse, Helotes, Tex., assignor to Transaction Control Industries, Bryan, Tex.

Filed 1980, Ser. No. 195,666

Int. Cl.³ G05F *1/44*

U.S. Cl. 323—278 **5 Claims**

1. A current limiting circuit for a switching regulator comprising:

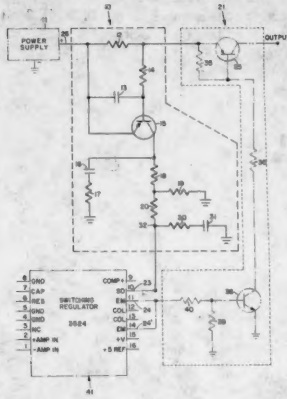
a source of unregulated power having at least one positive terminal connected through a first switching means to a load;

switching regulator means having at least one shut-down signal position for adjusting downward the duty cycle of the switching regulator, and at least one output, said output being operably connected to said first switching means whereby said switching means opens and closes in response to the output of said switching regulator, thereby alternately connecting and disconnecting said source of unregulated power to said load;

current limiting means operably connected between the positive terminal of said source of unregulated power and said shut-down signal position of said switching regulator for adjusting downward the duty cycle of said switching regulator when current in the positive terminal of said source of unregulated power exceeds a predetermined value wherein said current limiting means comprises;

current sensing means operably connected to the positive terminal of said source of unregulated power;

circuit means for operably connecting said positive terminal to said shut-down signal position of said switching regulator when said current sensing means detects current in said positive terminal exceeding a predetermined value, wherein said circuit means comprises second switching means for connecting the positive terminal of said source of unregulated power to said shut-down signal position of said switching regulator and operably connected to said current sensing means whereby said second switching means connects said positive terminal to said shut-down



signal position when said current sensing means detects current in said positive terminal exceeding a predetermined value; and

filter means operably connected between said current sensing means and said second switch means for removing high-frequency spikes thereby preventing premature operation of said second switch means.

4,335,346

TEMPERATURE INDEPENDENT VOLTAGE SUPPLY

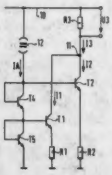
Klaus Streit, Tubingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed 1981, Ser. No. 235,757

Claims priority, application Fed. Rep. of Germany, 1980, 3006598

Int. Cl.³ G05F *3/20*

U.S. Cl. 323—313 **8 Claims**



1. Circuit for generating a temperature independent output voltage, comprising

means for supplying an operating voltage;

a reference resistor (R3) connected to said operating voltage supply means;

a first and second transistor respectively having a first and second emitter-collector circuit connected to said reference resistor and a first and second base;

a first and second resistor (R1, R2) respectively connecting said first and second emitter-collector circuit to reference potential;

voltage divider means (T4, T5) having a first and second

voltage divider tap respectively connected to said base of said first and second transistor, and

means for creating a constant current flow through said voltage divider means.

4,335,347

POWER COMBINING OR DIVIDING ARRANGEMENTS

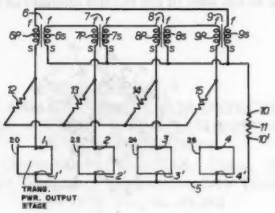
John W. Heaviside, Hurstpierpoint, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed 1980, Ser. No. 143,734

Claims priority, application United Kingdom, 1979, 7914571

Int. Cl.[3] H01Q *23/00*

U.S. Cl. 323—328 7 Claims



1. An n-way combining arrangement comprising an array of n-transformers the start of the primary winding of each of which is connected to a different one of n-input terminals and wherein the finish of each primary winding is connected to the finish of the secondary winding of a different one of said transformers, the starts of all of the secondary windings are connected together and to an output terminal and each input terminal is connected to one end of a respective one of n-balancing loads the other ends of which are connected together.

4,335,348

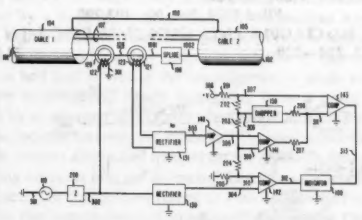
CABLE CONDUCTOR CONTINUITY TESTER WITH MAGNETICALLY COUPLED DRIVE MEANS AND SENSOR

William C. Reed, Lilburn, and Donald T. Smith, Norcross, both of Ga., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed 1980, Ser. No. 139,100

Int. Cl.[3] G01R *31/02*

U.S. Cl. 324—51 1 Claim



1. Apparatus for verifying the continuity of a splice path (**106**), said path comprising a first wire (**1061**) emanating from a first cable segment (**101**) joined to a second wire (**1062**) emanating from a second cable segment (**102**), said first segment and said second segment having continuous metallic shields (**104,105**) electrically interconnected (**103**), said apparatus characterized by

a source comprising an oscillator (**110**) and a reference impedance (**200**) connected in series with said oscillator,

a drive transformer comprising a first split core (**120**) for coupling to said path and a drive winding (**122**) connected to said source,

a sense transformer comprising a second split core (**121**) for coupling to said path and a sense winding (**123**) coupled to said second core,

first averaging means (**130**), connected to said source, for providing a first signal level (**304**) indicative of the voltage developed across said impedance,

second averaging means (**131,140**), coupled to said sense winding, for providing a second signal level (**305**) indicative of the magnitude of the signal induced in said sense winding,

means (**201–205,306**) for generating a first reference level (**310**) indicative of a closed magnetic path in said first core; and a second reference level (**309**) indicative of a closed magnetic path in said second core and said continuity of said splice path,

first comparison means (**142**), responsive to said first averaging means and said means for generating, for providing a first activation signal (**312**) whenever said first signal level exceeds said first reference level,

second comparison means (**141,143,150**), responsive to said second averaging means and said means for generating, for providing a second activation signal (**313**) whenever said second signal level exceeds said second reference level, and

means (**160**), coupled to said first comparison means and said second comparison means, for indicating said continuity upon sensing the presence of both said first activation signal and said second activation signal.

4,335,349

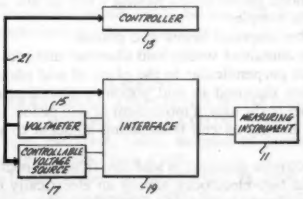
SIMULATED OHMS GENERATION METHOD AND APPARATUS FOR CALIBRATING RESISTANCE TYPE MEASURING INSTRUMENTS

K. Paul Baldock, Marysville, and J. Craig Smith, Jr., Everett, both of Wash., assignors to John Fluke Mfg. Co., Inc., Mountlake Terrace, Wash.

Filed 1980, Ser. No. 156,569

Int. Cl.[3] G01R *27/02*

U.S. Cl. 324—62 25 Claims



1. A simulated ohms generation method of calibrating resistance type measuring instruments comprising the steps of:

determining the current or voltage nature of the internal power supply of the resistance type measuring instrument to be calibrated;

adjusting the output of a voltage source connected in series with a fixed resistance so that the combination simulates a predetermined resistance value;

applying said voltage source connected in series with said fixed resistance to the input of said resistance type measuring instrument;

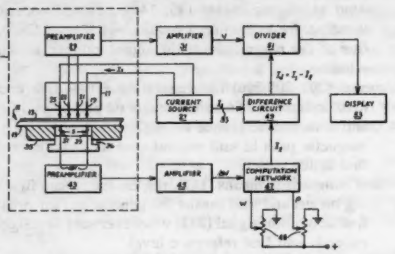
changing the value of the voltage source so that the measuring instrument reading is slewed toward the predetermined resistance value; and,

determining the calibration error when the measuring instrument reading is the same as the predetermined resistance value.

4,335,350
APPARATUS FOR PROBING SEMICONDUCTOR WAFERS

James T. C. Chen, 1526 Cherrywood Dr., San Mateo, Calif. 94403

Filed 1980, Ser. No. 152,664
Int. Cl.[3] G01R 27/14
U.S. Cl. 324—64 12 Claims



1. Apparatus for determining sheet resistivity of a semiconductor sample having a layer disposed on a substrate comprising:

a first probe disposed on one side of said sample and having four spaced-apart electrodes positionable in contact with the surface of said layer;

first circuit means coupled to said probe for applying a determinable injected current to said layer through a selected two of said electrodes and for indicating the voltage difference on said layer between the other two of said electrodes;

a second probe disposed in alignment with said first probe and on the opposite side of the sample, said second probe having two spaced-apart electrodes positionable in contact with the surface of said substrate; and

second circuit means coupled to the electrodes of said second probe for determining the magnitude of leakage current flowing through the substrate which is a portion of said injected current applied to said layer.

10. Apparatus for positioning measuring electrodes in contact with a semiconductor sample comprising:

a perforated planar platen having a top surface for supporting the sample;

a chamber disposed below said platen;

a piston contained within said chamber and movable along an axis perpendicular to the plane of said platen;

two tubes disposed in said piston in spaced-apart relation parallel to the axis of movement of said piston, each of said tubes having an end terminating adjacent to said platen; and

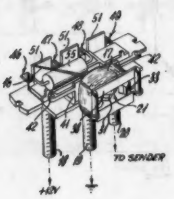
two electrodes disposed in said two tubes, respectively, each of said two electrodes having an electrically conductive tip resiliently biased to extend from the corresponding tube, said electrodes being movable through perforations in said platen into engagement with the semiconductor sample in response to movement of said piston.

4,335,351
MOVING MAGNET ELECTRICAL METER WITH SINGLE PIVOT PIN FOR THE MOVING MAGNET AND A FIXED RETURN MAGNET

Thomas G. Faria, 17 Park Dr., Waterford, Conn. 06385

Division of Ser. No. 892,032, Mar. 31, 1978, abandoned. This application 1980, Ser. No. 138,530
Int. Cl.[3] G01R 5/16, 1/04
U.S. Cl. 324—146 10 Claims

9. In a moving-magnet electrical meter, comprising a frame and movable indicator means having an indicator portion and a permanently magnetized hub portion, said hub portion being pivotally mounted to said frame, a polarized return magnet carried by said frame, and a coil fixedly carried by said frame and surrounding both said magnetized hub portion and said return magnet, the improvement (a) wherein said frame comprises separate upper and lower single-piece bobbin parts one of which is integrally formed with a terminal-mounting base portion, each of said parts including a portion defining a bobbin channel and said parts having coacting spacing and locating formations which cooperatively position said channels in spaced parallel relation with side walls of the respective channels extending in opposite directions, whereby said one part may constitute a chassis for initial assembly of terminal and other elements thereto when the bobbin channel thereof is facing downward, (b) wherein terminal elements including spaced conductive strips are assembled to said mounting base portion, and said return magnet and an upstanding pivot pin are mounted to the base of the bobbin channel of said one part,

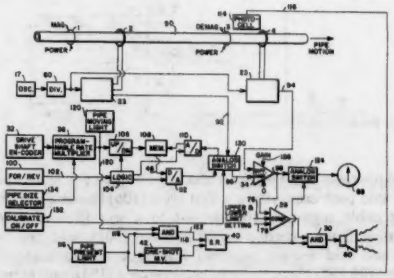


(c) wherein said hub portion has a pivot bore of limited depth, said pin locating in said bore and positioning said hub portion in close clearance with said return magnet, (d) said other part being fitted to said one part with the channel base thereof in close clearance relation with said hub portion, and (e) wherein said coil holds the assembled relation of said parts, with the turns of the coil received and located by and between the sidewalls of said channels, the respective ends of the coil having electrical connection to different terminal strips, all of the respective terminal strips being severed parts of the same single terminal strip blank, said strips being initially retained by a common elongate connection strip which initially interconnects said strips at said single alignment, whereby all further terminal assembly may be made to said base and strip blank prior to severance along said alignment.

4,335,352
YIELD STRENGTH DETERMINATION OF FERROMAGNETIC MATERIALS

David D. Stephen, Houston, Tex., assignor to Homco International Inc., Houston, Tex.

Filed 1979, Ser. No. 102,790
Int. Cl.[3] G01R 33/12; G01N 27/72; B07C 5/344
U.S. Cl. 324—228 28 Claims



20. A circuit for determining the magnetic qualities of a ferrous material comprising means to generate signals corresponding to a magnetized state and a demagnetized state of said

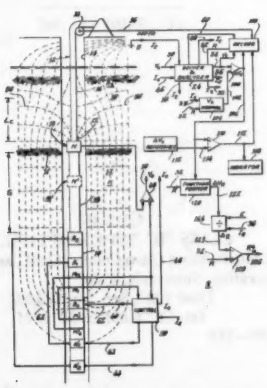
material, means to compare said signals to each other comprising a differential amplifier, means for feeding said signals into said differential amplifier, indicating means, means for tabling values corresponding to different types of said ferrous materials on said indicating means, and means for supplying the output signal of said differential amplifer to said indicating means, whereby the indicating means provides a reading which can be compared to readings for known ferrous materials to thereby identify said ferrous material.

4,335,353

METHOD AND APPARATUS FOR DETECTING AN ANOMALY IN A RESISTIVITY MEASUREMENT OF AN EARTH FORMATION

Philippe J. Lacour-Gayet, Ridgefield, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed 1979, Ser. No. 49,382
Int. Cl.³ G01V *3/24*
U.S. Cl. 324—366 **43 Claims**



1. In a method for electrically investigating earth formations traversed by a borehole where the earth formations may include a highly resistive formation bed overlying a formation layer characterized by a low resistivity relative to that of the formation bed and in which the investigation is made with a resistivity investigating sonde suspended from a cable surrounded by an exposed conductive sheath and with a reference electrode located between the sonde and the conductive sheath and with current electrodes located on the sonde to introduce alternating currents into the adjoining formation for a resistivity measurement thereof and return to a surface located return electrode, the improvement comprising the steps of

measuring an electrical signal between an electrode on the sonde and the reference electrode;

deriving from the measured electric signal a phase sensitive signal which varies in response to a short circuit effect by said conductive sheath upon said reference electrode while remaining relatively insensitive to variations of the resistivity of the adjoining earth formation; and

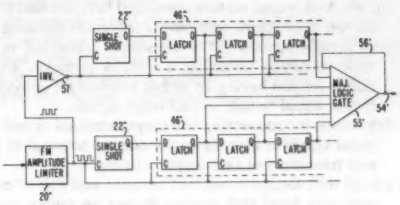
applying said phase sensitive signal to indicate the presence of an error in a resistivity measurement of the earth formation.

4,335,354

SENSITIVE DEMODULATOR FOR FREQUENCY SHIFT KEYED CARRIER SIGNALS

Kenneth C. Crandall, Foster City, and Michael A. Robinton, Palo Alto, both of Calif., assignors to Robinton Products, Inc., Sunnyvale, Calif.

Filed 1980, Ser. No. 137,488
Int. Cl.³ H03D *3/00*
U.S. Cl. 329—126 **16 Claims**



1. A demodulator for extracting digital information from a frequency shift keyed carrier signal having cycles of at least two differing frequencies respectively representing two different digital indicia, cycles of said carrier signal of each of said differing frequencies having a first pair of selected voltage characteristic points separated in a cycle by time intervals of occurrence distinctive of which of said two differing frequencies is represented thereby, comprising:

A. means responsive to occurrence of a first one of said first pair of voltage characteristic points in a cycle of said carrier signal by generating an intermediate signal indicative thereof; and

B. means for furnishing a first state output signal representative of said intermediate signal for a predetermined period of time falling between the time intervals distinctive of cycles of said two frequencies and responsive to occurrence of the second one of said first pair of voltage characteristics by conforming said first state output signal to one representative of the state of said furnishing means at the time of said occurrence of said second one of said characteristic points;

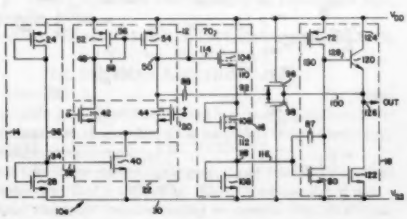
whereby said state output signal is representative of the frequency of the carrier signal cycle having said first pair of voltage characteristic points.

4,335,355

CMOS OPERATIONAL AMPLIFIER WITH REDUCED POWER DISSIPATION

Yusuf A. Haque, San Jose, Calif., assignor to American Microsystems, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 80,153, Sep. 28, 1979, Pat. No. 4,284,957. This application 1981, Ser. No. 234,239
Int. Cl.³ H03F *3/45*
U.S. Cl. 330—253 **3 Claims**



1. An operational amplifier comprising:

a first and a second conductor, said first conductor con-

nected to a first voltage source and said second conductor connected to a second voltage source;

a bias section connected between said pair of conductors, said bias section having an output terminal;

a differential amplifier section, connected between said first and second conductors including a constant current element connected to said output terminal of said bias section, said differential amplifier section including an input section for receiving positive and negative input signals and an output terminal;

a Class A–B output section connected between said first and second conductors, said output section comprising a pair of complementary MOS transistors connected in series each transistor including a control terminal, and said output section having an output terminal for providing an output signal related to said input signals;

first means for connecting said output terminal of said differential amplifier directly to the control terminal of one of said transistors of said output section;

a level shift section connected between said pair of conductors, said level shift section having an output terminal, wherein said level shift section comprises three MOS transistors connected in series between said first and second conductors, each of said three MOS transistors having a gate electrode and one of said three MOS transistors having its gate electrode connected to said differential amplifier output terminal by a second means for connecting;

third means for connecting said level shift section output terminal to the control terminal of the other transistor of said output section; and

a supplementary output stage having an output terminal, said supplementary output stage comprising a bipolar transistor having its base connected to said output node of said output stage,

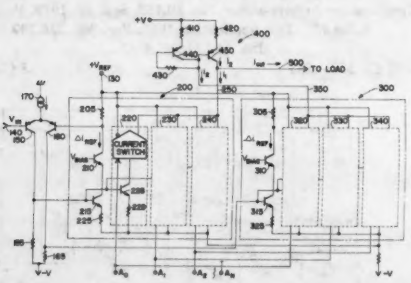
whereby said supplementary output stage provides a relatively low output impedance on said output terminal.

4,335,356

PROGRAMMABLE TWO-QUADRANT TRANSCONDUCTANCE AMPLIFIER

Philip S. Crosby, Portland, OR, assignor to Tektronix, Inc., Beaverton, Oreg.

Filed 1980, Ser. No. 113,857
Int. Cl.³ H03F *3/45;* H03G *3/30*
U.S. Cl. 330—254 **5 Claims**



1. A controllable gain amplifier, comprising

input means responsive to an input signal for providing phase-opposed first and second signals,

current amplifying means for producing at an output thereof a current substantially equal in magnitude to that provided at an input thereof,

a first multiplying digital-to-analog converter having (a) an input coupled to receive said first signal, (b) an output coupled to the input of said current amplifying means, and (c) a plurality of control signal terminals,

a second multiplying digital-to-analog converter having (a) an input coupled to receive said second signal, (b) an output coupled to the output of said current amplifying means, and (c) a plurality of control signal terminals, each one connected in parallel with a corresponding control terminal of said first converter, and

output means coupled to the output of said current amplifying means for providing an output signal at a gain determined by a signal applied to said control terminals.

4,335,357

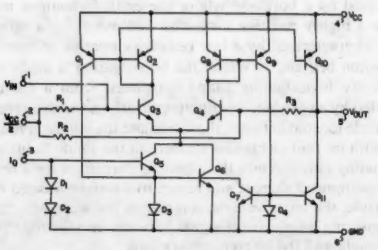
Patent Not Issued For This Number

4,335,358

CLASS "B" TYPE AMPLIFIER

Werner H. Hoeft, Santa Clara County, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed 1980, Ser. No. 113,928
Int. Cl.³ H03F *3/30, 3/45*
U.S. Cl. 330—255 **6 Claims**



1. A Class "B" type amplifier circuit, which comprises:

differential amplifier input circuit means having a single-

ended signal input terminal, a current bias terminal and first and second differential output terminals;

Class "B" converter circuit means having an input terminal for receiving a DC bias input current, an AC current summing node, a converter output terminal and a common terminal, said converter output terminal being connected to the current bias terminal of said differential amplifier to provide a modulated DC bias signal thereto, and said first and second differential output terminals being operatively coupled to said current summing node; and

output amplifier circuit means having first and second input terminals operatively coupled to said first and second differential output terminals, respectively, and a single-ended output terminal for providing an amplified output signal with respect to said common terminal.

4,335,359

MONOLITHICALLY INTEGRABLE LOWPASS FILTER CIRCUIT

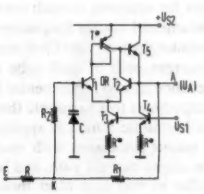
Hans Kriedt, and Andreas Dietze, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 115,257

Claims priority, application Fed. Rep. of Germany, 1979, 2903299

Int. Cl.³ H03F *1/34*

U.S. Cl. 330—257 **7 Claims**



1. Monolithically integrable lowpass filter circuit comprising a signal input, a circuit node, a first series resistor connected between said signal input and circuit node, an operational amplifier, a signal output connected to the output of said operational amplifier, a second resistor connected between said circuit node and said signal output, a third resistor connected between said circuit node and the non-inverting input of said operational amplifier, and a capacitor directly connected between the non-inverting input and ground, said signal output being further directly connected to the inverting input of said operational amplifier, the circuit components being bipolar semiconductor components.

4,335,360

CLASS AB PUSH-PULL AMPLIFIERS

Merle V. Hoover, R.D. #6, Box 220, Flemington, N.J. 08822

Filed 1979, Ser. No. 97,040

Int. Cl.³ H03F *3/16, 3/30*

U.S. Cl. 330—264 **9 Claims**

1. A Class AB push-pull amplifier comprising:

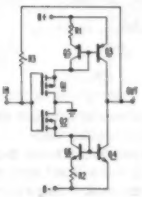
a signal input terminal and a signal output terminal;

first and second supply terminals for receiving a relatively positive first operating voltage and a relatively negative second operating voltage respectively;

first and second field effect transistors respectively of p-channel and of n-channel conductivity types, each having respective source and drain electrodes defining the ends of its channel for conducting current and having a respective gate electrode; said first and second field effect transistors having matched current conduction versus source-to-gate voltage characteristics;

means connecting said first and second field effect transistors for operating them as source followers between said signal input terminal and their respective source electrodes; and

first and second current amplifiers of complementary conductivity having respective input connections to the



source electrode of said first field effect transistor and to the source electrode of said second field effect transistor, having respective common connections to said first supply terminal and to said second supply terminal, having respective output connections to said signal output terminal, and having matched current gains between their respective input and output connections for levels at least as large as the quiescent levels of conduction in said first and second field effect transistors, wherein said first and second current amplifiers are non-linear current amplifiers each having a current gain between its input and output connections which increases with increasing current through its input connection.

4,335,361

VARIABLE GAIN AMPLIFIER

William F. Acker, Seminole, Fla., assignor to Honeywell Inc., Minneapolis, Minn.

Division of Ser. No. 829,705, Sep. 1, 1977. This application 1979, Ser. No. 102,600

Int. Cl.³ H03G *3/30;* H03F *1/34*

U.S. Cl. 330—285 **15 Claims**

1. A variable gain amplifier having a variable gain amplifier input terminal and a variable gain amplifier output terminal, said amplifier comprising:

an input transistor means having an input transistor control terminal and first and second input transistor terminals;

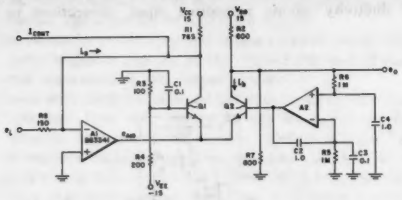
an output transistor means having an output transistor control terminal and first and second output transistor terminals, said second input transistor terminal being electrically connected to said second output transistor terminal; and

a maintaining means to maintain selected non-zero fre-

quency voltage components occurring between said input transistor control terminal and said second input transistor terminal substantially equal to corresponding non-zero frequency voltage components occurring between said output transistor control terminal and said second output transistor terminal including:

an input maintaining means electrically connected between said first and second input transistor terminals, said input maintaining means also being electrically connected to said variable gain amplifier input terminal;

an output maintaining means electrically connected between said first output transistor terminal and said output transistor control terminal;



first interconnection means adapted to be electrically connected to a voltage source; and

first and second capacitive means, each of said capacitive means having first and second terminals, said first capacitive means first terminal being electrically connected to said input transistor control terminal and said first capacitive means second terminal being electrically connected to said first interconnection means, said second capacitive means first terminal being electrically connected to said output transistor control terminal and said second capacitive means second terminal being electrically connected to said first interconnection means.

4,335,362

SEMICONDUCTOR DEVICE AND A METHOD OF CONTACTING A PARTIAL REGION OF A SEMICONDUCTOR SURFACE

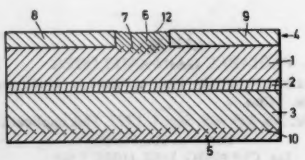
Rene P. Salathe, Bern; E. Gerhard Badertscher, Bolligen, and Willy A. R. Lüthy, Köniz, all of Switzerland, assignors to Institut fur Angewandte Physik der Universitat Bern, Bern, Switzerland

Filed 1979, Ser. No. 94,236

Claims priority, application Switzerland, 1978, 11827/78

Int. Cl.³ H01S *3/19*

U.S. Cl. 372—46 **5 Claims**



1. A semiconductor device comprising, a plurality of semiconductive layers having an outer semiconductive layer, and a contact layer consisting of one or more metal or semiconductor materials uniformly and entirely covering said outer semiconductive layer and having over its entire surface the same material composition and abutting over its entire surface directly against said outer semiconductive layer but having only on a partial region of its surface a conductive transition to said outer semiconductive layer, said partial region being only a fraction of the entire surface of said contact layer and said conductive transition being obtained by alloying said partial region by means of a focused laser beam pulse heating only said partial region of the contact layer to the alloying temperature of said one or more metals or semiconductor materials, whereby alloy constituents of the melted contact material wetting said outer semiconductive layer diffuse only in a superficial zone of said outer semiconductive layer.

4,335,363

AMPLITUDE MODULATOR USING A CARRIER TUBE AND A PEAKING TUBE

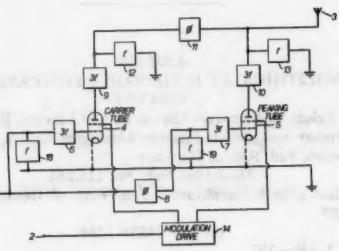
Douglas F. Bowers, Chelmsford, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed 1980, Ser. No. 175,832

Claims priority, application United Kingdom, 1979, 7928255

Int. Cl.³ H03C *1/24*

U.S. Cl. 332—37 R **9 Claims**



1. A radio frequency amplifier including first and second electron discharge tubes each having a cathode, a control grid and an anode; means for applying to each control grid a signal comprising the fundamental carrier frequency of a signal to be amplified and harmonics thereof; first filter means connected in the grid-cathode current path of each tube and arranged to present a low impedance to said fundamental frequency whilst presenting a high impedance to a harmonic thereof to attenuate the voltage of said harmonic which is applied to the control grid; second filter means associated with each tube and connected in the anode output current path, and having frequency characteristics similar to said first filter means and being so arranged that substantially only said fundamental frequency appears at output terminals of the amplifier; first phase shift means arranged so that the signals applied to the control grid of said second tube are delayed by a quarter wavelength of the fundamental frequency relative to those signals applied to the control grid of said first tube; second phase shift means arranged to couple together the anode circuits of the first and second tubes such that amplified signals provided by said first tube are in phase at the output terminals with the amplified signals provided by said second tube; and means for applying modulation signals to both first and second tubes so as to modulate said carrier frequency.

4,335,364

TRANSITION FROM A COAXIAL CABLE TO A MULTIPOLE PLUG-IN CONNECTOR

Johannes Schmitz, and Roland Röhrbein, both of Backnang, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed 1980, Ser. No. 211,787

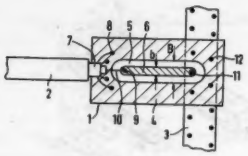
Claims priority, application Fed. Rep. of Germany, 1979, 2949013

Int. Cl.³ H01P *5/08*

U.S. Cl. 333—33 **4 Claims**

1. A transition piece for establishing a transition between a coaxial cable having an inner conductor and an outer conduc-

tor and a plug-in connector component having a plurality of terminals disposed adjacent one another, comprising a coupling member in the form of a coplanar stripline presenting a conductive strip and a conductive surface surrounding, and electrically insulated from, said conductive strip, means connecting the inner conductor of the cable to a point at one end



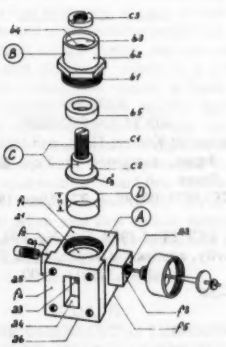
of said conductive strip, means connecting the outer conductor of the cable to said conductive surface, means connecting a first terminal of the connector component to a point at the end of said conductive strip opposite its said one end, and means connecting at least one terminal adjacent the first terminal to said conductive surface.

4,335,365

TEMPERATURE STABILIZED AND FREQUENCY ADJUSTABLE MICROWAVE CAVITIES

Enzo Pome', Sesto S. Giovanni, Italy, assignor to Telettra-Telefonica Electronica e Radio S.p.A., Milan, Italy

Filed 1980, Ser. No. 190,566
Claims priority, application Italy, 1979, 26491 A/79
Int. Cl.³ H01P 7/06
U.S. Cl. 333—229 **4 Claims**



1. A frequency adjustable, highly temperature-stabilized resonant wave guide cavity for microwave oscillators, comprising:

a metal body having a hollow cylindrical interior with a predetermined inside diameter forming said cavity;

a tuning screw extending into said cavity;

a plug member threadedly engaging said body and through which said tuning screw extends;

a first lateral coupling member for coupling a diode to said cavity;

a second lateral termination coupling; and

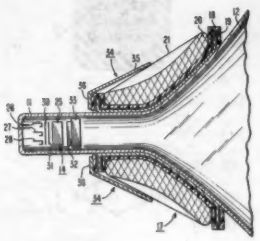
a preformed solid cylinder of amorphous quartz having an outer diameter substantially equal to the predetermined inside diameter of the hollow metal body interior and disposed in said cavity, said quartz cylinder filling said cavity to a height which determines the resonant frequency of the cavity and being replaceable with other quartz cylinders of different heights.

4,335,366

COLOR TELEVISION DISPLAY SYSTEM HAVING IMPROVED CONVERGENCE

Roger C. Alig, Princeton Junction; William H. Barkow, Pennsauken, and Josef Gross, Princeton, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 119,132
Int. Cl.³ H01F 3/12, 7/00
U.S. Cl. 335—211 **5 Claims**



1. In a television receiver comprising a kinescope having a neck region, a display screen and an intermediate funnel region; a deflection yoke, disposed about said kinescope neck and funnel region, having a pair of vertical deflection coils toroidally-wound about a core, said coils producing a magnetic deflection field comprising a portion located within the interior of said yoke and an external portion located within a first field region generally disposed at the rear of said yoke, and within a second field region generally disposed at the sides of said yoke; an electron gun assembly for producing three horizontal in-line electron beams, disposed within said kinescope neck region in the vicinity of said first field region, said electron gun assembly incorporating a magnetically-permeable focusing electrode for reducing defocusing of said beam caused by said field located in said first external field region, said magnetically-permeable electrode interacting with said field located within said first external field region in a manner tending to cause overconvergence of said electron beams at the ends of the minor axis on said kinescope display screen in the absence of compensation therefor; compensation apparatus comprising:

a pair of magnetically-permeable field formers located on opposite sides of said yoke, each comprising a first elongated portion disposed adjacent said yoke within said second external field region, and a second portion angled with respect to said first portion; each of said second field former portions having a termination disposed adjacent to said kinescope neck in the vicinity of the exit end of said electron gun assembly for causing interaction of said electron beams with a magnetic field formed between said second field former portions in a manner compensating for said overconvergence.

4,335,367

ELECTRICALLY INSULATED COIL

Hisayasu Mitsui; Ryozi Kumazawa; Yoshiyuki Inoue; Shuichi Suzuki, all of Yokohama; Takeo Ito, Kawasaki; Sinichi Sanada, and Shuzi Hayase, both of Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

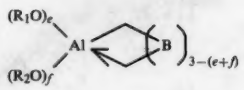
Filed 1980, Ser. No. 178,154
Claims priority, application Japan, 1979, 54/104074; 1979, 54/104075
Int. Cl.³ H01F 27/32; B32B 19/00, 27/38
U.S. Cl. 336—205 **10 Claims**

1. An electrically insulated coil, comprising:

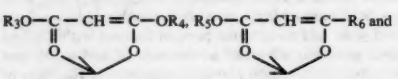
a coil; and

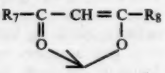
a mica tape containing a resinous composition wound upon said coil, said resinous composition containing a malei-

mide compound, an epoxy resin, a curing catalyst consisting of an aluminum compound of the formula:

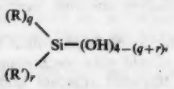


wherein R_1 and R_2 independently are alkyl, e and f are zero or integers from 1 to 3 such that the value of e+f does not exceed 3 and B is a ligand selected from the group consisting of

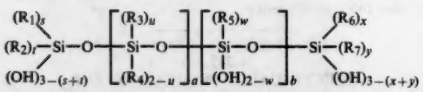




wherein each R_3–R_8 radical is alkyl, and a curing accelerator selected from the group consisting of a silane compound of the formula:



wherein each R and R' radical independently is alkyl, phenyl, aralkyl, vinyl or allyl, q and r are each O or an integer of 1 to 3 with the sum of q and r not exceeding 3 and a polysiloxane compound of the formula:



wherein each of the radicals R_1–R_7 independently is a monovalent organosiloxane each optionally substituted by alkyl, phenyl, vinyl, aralkyl, allyl or hydroxyl, each of s, t, x and y being 0, 1 or 2, the sum of s and t and the sum of x and y not exceeding 2, each of u and w being 0, 1 or 2 and each of a and b being 0 or 1 or more;

said curing catalyst and said curing accelerator each being present in an amount of approximately 0.001 to 5% by weight based on the total amount of said maleimide compound and said epoxy resin; and

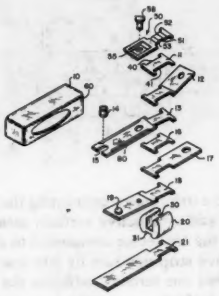
curing said resinous composition by heating after said mica tape is wound around the coil.

4,335,368

DEAD CASE THERMOSTAT ASSEMBLY

Omar R. Givler, North Canton, Ohio, assignor to Portage Electric Products, Inc., North Canton, Ohio

Filed 1981, Ser. No. 234,242
Int. Cl.³ H01H *37/04, 37/52*
U.S. Cl. 337—372 **7 Claims**



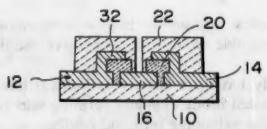
1. In a dead case thermostat having operating members including a bimetallic actuator, contact arms, connector members, and insulators held within a ceramic block insulator, the improvement which comprises a spring member placed within the block insulator, in a position to bear directly against the case into which the block insulator, with the operating members in place, is inserted, whereby the operating members of the thermostat are held in place within the case by a friction fit.

4,335,369

OXYGEN SENSOR

Harutaka Taniguchi; Kenichi Hara, and Hideo Shiraishi, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

PCT No. PCT/JP79/00195, § 371 Date 1980, § 102(e) Date 1980
PCT Filed 1979, Ser. No. 194,242
Claims priority, application Japan, 1978, 53/91203
Int. Cl.³ H01L *7/00*
U.S. Cl. 338—34 **9 Claims**

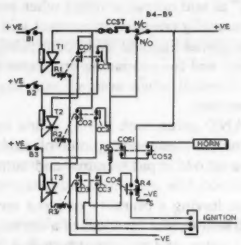


1. An oxygen sensor for detecting a change of an oxygen partial pressure in an ambient atmosphere through a change of an electric resistance of a transition-metal oxide, characterized in that a porous thick membrane of transition-metal oxide having a thickness of 50 to 100 μm and electrode metal thick membranes divided into two parts in contact with said porous thick membrane are arranged on a ceramic base and all free surfaces of said thick membrane of transition-metal oxide and at least part of free surfaces of said electrode metal thick membranes are coated with a ceramic protective layer.

4,335,370
VEHICLE SECURITY DEVICE

Douglas M. Scalley, 21 McGregor Rd., Ravenswood, Cumbernauld, and John M. Mullin, 11 Kirriemuir Gdns., Bishopbriggs, Glasgow, both of Scotland

Filed 1981, Ser. No. 265,726
Int. Cl.³ B60R *25/04, 25/10*
U.S. Cl. 340—64 **12 Claims**



1. A security device for controlling the ignition circuit of a vehicle provided with a steering lock having locked and unlocked positions and a starter motor circuit, said device comprising an electrical circuit having: a security ignition circuit switch means for opening and closing said ignition circuit, in use of the device, independently of any manually operable ignition circuit switch means; a steering lock control switch means connectable to said steering lock, in use of the device, and having disabling and non-disabling operating conditions, corresponding respectively to locked and unlocked positions of the steering lock, for respectively disabling and not disabling said vehicle with respect to starting thereof; a plurality of first switch means actuable by a vehicle user and arranged in a security circuit so that operation of each of said first switch means is necessary in said predetermined sequence to close said security ignition circuit switch means; and connection means for connection of said electrical circuit to a power supply means; and an alarm connection means, at least one of said vehicle having an audible warning and/or lighting system connectable to said alarm connection means, and said alarm connection means being connected to a separate alarm means, said alarm connection means being arranged for activation thereof in response to actuation of said first switch means in an incorrect sequence, whereby in use of the device the vehicle can only be started when said first switch means have been actuated in said predetermined sequence and said steering lock has been placed in its unlocked position.

4,335,371
DIGITAL ERROR CORRECTING TRIMMING IN AN ANALOG TO DIGITAL CONVERTER

Joseph J. Connolly, Jr.; Thomas P. Redfern, and Thomas M. Frederiksen, all of San Jose, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed 1979, Ser. No. 28,464
Int. Cl.³ H03K *13/08*
U.S. Cl. 340—347 CC **7 Claims**

1. A digitally trimmed analog-to-digital converter that provides a plural bit digital output word representative of an analog input voltage, said converter comprising:

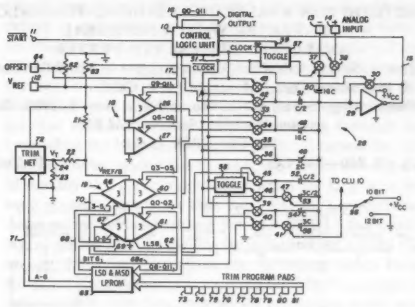
an analog-to-digital converter capable of supplying a plurality of digital output words, each one of which represents a different analog input voltage, said converter including a plurality of dual digital-to-analog converter elements commonly coupled to a comparator having a plurality of capacitor weighted charge balanced input pairs;

means for varying the values of said analog voltages representative of particular ones of said digital output words in response to digital trim words by applying correcting voltages to selected inputs of said comparator said digital trim words including an individual trim word for each one of said particular ones of said digital output words;

read only memory means for storing said digital trim words;

means for addressing said read only memory means with said particular ones of said digital output words;

means for applying the digital trim words in said read only memory to said means for varying;



means for temporarily bypassing said read only memory;

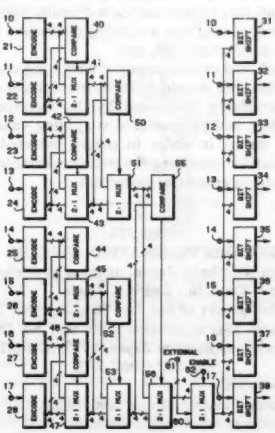
means for applying an externally generated digital trim word to said converter wherein said externally generated word can be manipulated to select a desired trim word; and

means for entering said desired trim word into said read only memory.

4,335,372
DIGITAL SCALING APPARATUS

Maurice B. Aufderheide, Scottsdale, and Sam M. Daniel, Tempe, both of Ariz., assignors to Motorola Inc., Schaumbur, Ill.

Filed 1980, Ser. No. 134,859
Int. Cl.³ G06F *3/00*
U.S. Cl. 340—347 DD **11 Claims**



1. Digital scaling apparatus comprising:

(a) encoding means adapted to receive a plurality of digital words each composed of a plurality of bits and provide a digital shift command for each digital word representative of the number of bits the digital word must be shifted to left-justify it;

(b) comparing means for comparing each of the shift commands to all of the remaining shift commands and select-

ing the shift command representative of the fewest number of bits to be shifted; and

(c) bit shifting means connected to receive the plurality of digital words and the selected shift command for shifting each of the plurality of digital words the number of bits represented by the selected shift command.

4,335,373

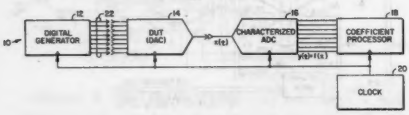
METHOD FOR ANALYZING A DIGITAL-TO-ANALOG CONVERTER WITH A NONIDEAL ANALOG-TO-DIGITAL CONVERTER

Edwin A. Sloane, Los Altos, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Continuation-in-part of Ser. No. 204,979, Nov. 7, 1980. This application 1981, Ser. No. 264,928

Int. Cl.³ H03K *13/02*

U.S. Cl. 340—347 CC **10 Claims**



1. A method for calibrating a digital-to-analog converter (DAC) comprising the steps of:

exciting inputs of the DAC under test from an excitation means generating known digital excitation signals, each said excitation signal being applied at a single digital bit input of the DAC under test and each said excitation signal being binary and orthogonal with respect to all other ones of said excitation signals, the sum of said excitation signals consisting of a maximum entropy sequence of uniform amplitude probability, said DAC under test producing an analog output signal;

providing said analog output signal of the DAC under test at an analog input of an analog-to-digital converter (ADC), the transfer function of said ADC having been characterized by premeasured weighting values of a set of binary orthogonal functions, said ADC producing digital output signals;

transforming said digital output signals from time domain digital signals into binary transform domain digital signals to obtain an output response weighting coefficient for each bit of the converter under test; and

correcting each said output response weighting coefficient for bias errors induced by said ADC by multiplying each output response weighting coefficient by the reciprocal of each corresponding said premeasured weighting values in a bias correction means in order to obtain unbiased weighting values of each bit specifying the transfer characteristic of the digital-to-analog converter under test.

4,335,374

KEY DISCRIMINATION CIRCUIT

Tomoaki Nyuji, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation-in-part of Ser. No. 964,438, Nov. 28, 1978, abandoned. This application 1980, Ser. No. 157,834

Claims priority, application Japan, 1977, 52-145234

Int. Cl.³ G06F *3/02*

U.S. Cl. 340—365 S **2 Claims**

1. A key discrimination circuit comprising:

a plurality of key input signal lines;

a plurality of key output signal lines mutually crossed with said plurality of key input signal lines in a matrix;

a plurality of key switches each coupled to a corresponding one of said key input signal lines and to a corresponding one of said key output signal lines for manually switching an electrical connection between said corresponding key input signal lines and said corresponding key output signal lines;

a plurality of first OR gates, each having an output terminal connected to a corresponding one of said key input signal lines, a first input terminal and a second input terminal;

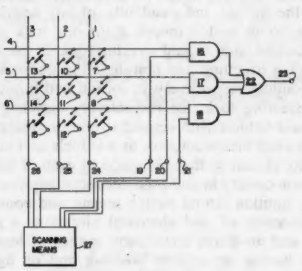
a R-S flip-flop having an output terminal connected to said first input terminal of each of said first OR gates, a set terminal and a reset terminal;

a second OR gate, having a plurality of input terminals each connected to a corresponding one of said key output signal lines and an output terminal, for producing an output signal "1" at said output terminal when one of said key switches is manually operated to connect said corresponding key input signal line and said corresponding key output signal line, and for producing an output signal "0" at said output terminal when none of said key switches is manually operated;

a plurality of AND gates, each having a first input terminal connected to a corresponding one of said key output signal lines, a second input terminal and an output terminal;

a third OR gate having a plurality of input terminals, each connected to said output terminal of a corresponding one of said AND gates, and an output terminal;

a first stage discrimination detector connected to said output terminal of said second OR gate and said reset terminal of said R-S flip-flop and having a trigger output terminal, for



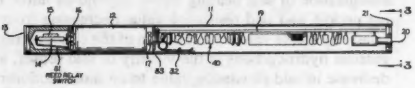
resetting said R-S flip-flop and for generating a trigger signal at said trigger output terminal when said second OR gate produces an output signal "1" at said output terminal thereof; and

a scanning means connected to said second input terminals of said plurality of first OR gates, said set terminal of said R-S flip-flop, said second input terminals of said plurality of AND gates, said output terminal of said third OR gate, and said trigger output terminal of said first stage discrimination detector, and having an output terminal, for scanning said plurality of key switches by application of a "1" level pulse signal to successive ones of said second input terminals of said plurality of first OR gates for a predetermined period, during which period said scanning means further applies a "1" level signal to each of said second input terminals of said plurality of AND gates successively in turn, and thereafter applying a "1" level pulse signal to said set terminal of said R-S flip-flop when said first stage discrimination detector generates said trigger signal and for generating an output signal at said output terminal of said scanning means indicative of the key switches among said plurality of key switches manually switched from the time of generation of a "1" level signal at said output terminal of said third OR gate relative to said scan of said plurality of key switches.

4,335,375
CONTAINER FOR AN ALARM TRANSMITTER ADAPTED FOR INSERTION INTO A WALL

Daniel D. Schaeffer, 757 Ocean Ave., Santa Monica, Calif. 90402

Filed 1978, Ser. No. 877,377
Int. Cl.³ G08B *1/08, 13/08*
U.S. Cl. 340—539 **7 Claims**



1. A combination of an improved end cap and a container for an alarm transmitter and components of a transmitter circuitry, having two power input terminals, said combination comprising:

a. a tubular member which is to be inserted into a hole in a frame for a door or window;

b. an elongated, rectangular member which is to be inserted into said tubular member and also which has the components of the transmitter circuitry placed thereon;

c. a battery having a first terminal which is electrically coupled to one of the power input terminals of the transmitter circuitry and second terminal;

d. a pair of mated battery connectors which are mechanically coupled to the first and second terminals of said battery;

e. supporting means for supporting said pair of mated battery connectors within said tubular member on said elongated, rectangular member;

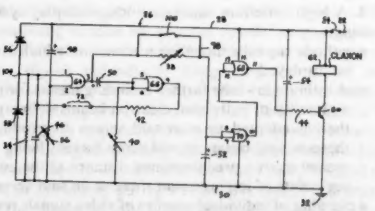
f. an improved end cap which is a cylindrical member having an open end with a cavity and a closed, flat end, said cylindrical member having a shoulder of a diameter which is equal to the outer diameter of said tubular member at said closed, flat end to provide a stop for said improved end cap and the rest of said cylindrical member is slightly tapered so that said improved end cap may be press fit into said tubular member; and

g. a reed relay switch which is disposed in said cavity of said improved end cap and which is electrically coupled to one of said pair of mated battery connectors.

4,335,376
ELECTRONIC CONTROL DEVICE

Ralph E. Marquardt, 2020 Eagle St. North, Cambridge, Ontario, Canada

Filed 1979, Ser. No. 29,558
Int. Cl.³ G08B *13/08*
U.S. Cl. 340—547 **9 Claims**



1. An electronic control device comprising the following elements:

(a) three separate time delays each creating a time delay period;

(b) a suitable direct current power source;

(c) means for switching the device on and off;

(d) a loop having an open position and a closed position;

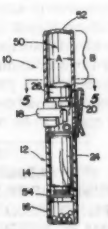
(e) an integrated circuit;

(f) detecting means that becomes activated for a period of time when the loop has been opened, said elements being connected by electronic circuit means so that said power source is connected to said detecting means, switching means and time delays, said time delays and loop being connected to said integrated circuit so that said integrated circuit can control the sequential operation of said time delays in such a manner that when said device is turned on, the first time delay having a first time delay period and preventing the activation of the detecting means even if the loop is open so long as the loop is closed before said first delay period expires, said device being in standby position with a low direct current flowing through the loop when the loop is closed, the device is turned on, and said first delay period has expired; the device moving out of standby to a detection position when the loop is or has been opened, the second time delay having a second time delay period and preventing the activation of the detecting means so long as the device is turned off before said second delay period expires, the detecting means being activated if the device is not turned off within said second delay period, said detecting means continuing to be activated so long as the loop is left open and sufficient power is available, with a third time delay means having a third time delay period to delay the shut down of the detecting means after the loop has been closed, said detecting means shutting down and said device automatically returning to the standby position when said third time period has expired.

4,335,377
MEDICAL ALERT ALARM

John S. Bostic, Parma Heights, Ohio, assignor to Joseph E. Belavich, Plant City, Fla.

Filed 1980, Ser. No. 167,786
Int. Cl.³ G08B *3/00*
U.S. Cl. 340—573 **11 Claims**



1. A portable medical alert alarm comprising:

(a) a housing for carrying electrical components necessary to produce a distinctive signal on the order of 640 Hertz capable of alerting bystanders to the fact of a medical emergency;

(b) audio oscillator circuitry disposed within the housing for producing an aural signal;

(c) a switch extending outwardly of the housing and having on and off positions for activating the alarm, the switch being connected to the audio oscillator circuitry; and,

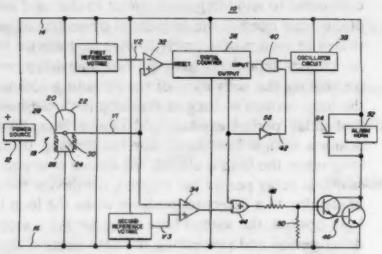
(d) a generally cylindrical resonant cavity included as part of the housing disposed adjacent to the audio oscillator circuitry for amplifying the sound emitted by the alarm, the cavity being located toward one end of the housing and having an open end located at the end of the housing, the ratio of resonant cavity length to diameter being approximately 2:1.

4,335,378

TIMED DUAL COMPARATOR ALARM

Charles Coleman, Lakewood, Colo., assignor to Emerson Electric Company, St. Louis, Mo.

Filed 1978, Ser. No. 971,510
Int. Cl.[2] G08B *17/10*
U.S. Cl. 340—629 **11 Claims**



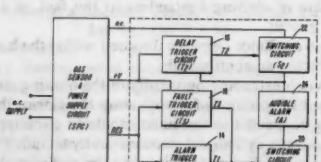
1. A combustion products detection apparatus, comprising:
sensing means for monitoring the concentration of combustion products in a region to be monitored and generating a sensed signal corresponding to the concentration;
first comparator means for comparing the sensed signal with a first reference signal and generating a first output indicating whether at least a first predetermined concentration of combustion products is present in the region to be monitored;
second comparator means for comparing said sensed signal with a second reference signal and generating a second output indicating whether at least a second predetermined concentration of combustion products is present in the region to be monitored, the second predetermined concentration of combustion products being greater in magnitude than the first predetermined concentration of combustion products;
timing means responsive to said first comparator means for monitoring the continuous time elapsed while at least the first predetermined concentration of combustion products is present in the region to be monitored; and
alarm means responsive to said timing means for producing a perceptible alarm signal when the first predetermined concentration of combustion products is sensed by said sensing means for a continuous preestablished period of time and for producing a perceptible output signal when the second predetermined concentration of combustion is present in the region to be monitored.

4,335,379

METHOD AND SYSTEM FOR PROVIDING AN AUDIBLE ALARM RESPONSIVE TO SENSED CONDITIONS

John R. Martin, 2345 W. Mill Rd., Milwaukee, Wis. 53209

Filed 1979, Ser. No. 75,218
Int. Cl.[3] G08B *17/10*
U.S. Cl. 340—634 **5 Claims**



1. An alarm system for providing an alarm upon the occurrence of a predetermined concentration of gaseous hydrocarbon in an area comprising:
a sensor including a gaseous hydrocarbon responsive variable resistance element connected between two electrodes and means for heating said variable resistance element, the resistance between said electrodes being related in value to the resistance of said variable resistance element, the resistance of said variable resistance element assuming a predetermined, relatively stable resistance value upon energization of said heating means beyond an initial heating period, and said resistance value decreasing from said relatively stable value as a function of the concentration of gaseous hydrocarbons in the vicinity of said sensor, and a decrease in said resistance value to an initial action resistance value substantially below said stable value during the initial heating period;
a series circuit arrangement comprising first and second switching means connected in series with a power source, each of said switching means being operable between conductive and non-conductive conditions in response to a trigger signal, said switching means producing an alarm signal with both the first and second switching means in the conductive condition;
alarm means for sounding an audible alarm in response to said alarm signal;
first trigger circuit means for triggering said first switching means into its conductive condition in response to said variable resistance element decreasing at least to a predetermined resistance value, which resistance value is below said stable value by an amount signifying a predetermined concentration of gaseous hydrocarbons in the vicinity of said resistance element, said predetermined resistance value being above said initial action resistance value occurring during said initial heating period;
second trigger circuit means including a capacitor having a charging path which includes said first switching means and connected to be charged to at least a predetermined charge level upon energization of said heating means, said second trigger circuit means triggering said second switching means into its conductive condition in response to said capacitor achieving said predetermined charge level; and
third trigger circuit means connected to said first switching circuit means for intermittently triggering said first switching circuit means into its conductive condition in response to the occurrence of an abnormal condition of said sensor.

4,335,380

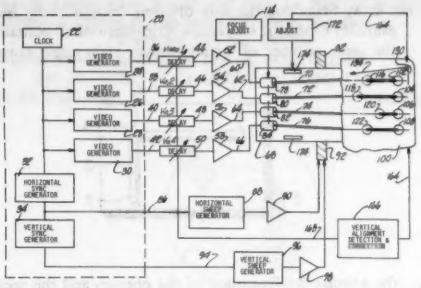
MULTI-BEAM RASTER SCAN DISPLAY MONITOR

David Y. Wright, 560 McMunn, South Lyon, Mich. 48178

Filed 1980, Ser. No. 159,570
Int. Cl.[3] H01J *46/00*
U.S. Cl. 340—744 **24 Claims**

1. A high definition raster scan image display system, comprising:
a cathode ray tube including a screen on which images may be displayed,
said cathode ray tube further including means for producing a plurality of individual electron beams defining an array thereof adapted to scan said screen to produce images thereon, said beams in said array thereof being vertically spaced apart a predetermined distance at the corresponding points of impingement thereon on said screen;
a plurality of individual sources of video signals respectively associated with said plurality of electron beams and operatively coupled with said beam producing means;
means for directing each of said beams in said array thereof onto said screen and for causing said beam array to scan said screen; and
means operatively coupled with said beam producing means and with said plurality of video signal sources for adjust-

ing the vertical alignment of the beams in said array thereof at said corresponding points of impingement of



said beams on said screen during scanning by said beam array.

4,335,381

REMOTE CONTROL OF ELECTRICAL DEVICES

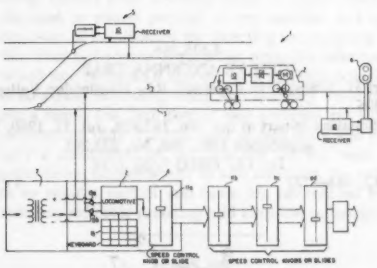
Robin Palmer, Harlow, England, assignor to Rovex Limited, England

Filed 1979, Ser. No. 66,550

Claims priority, application United Kingdom, 1978, 33372/78; 1979, 7917702

Int. Cl.³ H04Q *9/00*

U.S. Cl. 340—825.21 **36 Claims**



1. A remote control system for controlling one or more electrical devices via power supply lines used to energise the device or devices, in use there being applied across the same supply lines a composite waveform comprising control signals and a cyclically repeating power supply waveform, the control signals comprising address information signals designating the device to which the control signal is addressed and control information signals individually designating the action required of the addressed device, each cycle of the power supply waveform comprising one or more intervals during which it is substantially zero in amplitude, the system comprising a transmitter for producing the control signals in timed relationship with the power supply waveform so that each control signal is transmitted in its entirety during a respective one of said intervals after the power supply waveform has achieved a zero amplitude, and at least one receiver adapted to receive said composite waveform and to identify received control signals assigned thereto and to appropriately control an associated electrical device, said at least one receiver including storage means for storing the control signal assigned thereto until updated during the next respective interval.

4,335,382

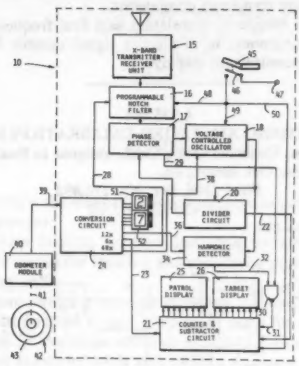
TRAFFIC RADAR SYSTEM

Bryce K. Brown, Decatur; Stephen Correll, Sadorus; Jay Schreiber, Villa Grove; Lawrence E. Mayfield, Decatur, and Darrell D. Jenkins, Argenta, all of Ill., assignors to Decatur Electronics, Inc., Decatur, Ill.

Filed 1980, Ser. No. 128,510

Int. Cl.³ G01S *13/60, 7/40*

U.S. Cl. 343—8 **12 Claims**



1. Apparatus for installation on a movable platform structure and for determining the speed of a target structure while both structures are in motion, comprising: energy transmitting and receiving means for transmitting energy toward and receiving energy from reflecting surfaces for developing a first signal having components indicating the relative speed of said platform structure and said reflecting surfaces, platform structure speed measuring means operable independently of said energy transmitting and receiving means for developing a second signal corresponding to the speed of said platform structure relative to stationary objects, second speed measuring means including means for comparing said second signal and components of said first signal which are produced from reflections from a moving target structure for measuring the speed of the target relative to stationary objects, and calibration adjustment means associated with said platform structure speed measuring means for adjustment thereof to insure an accurate relationship between said second signal and the actual speed of movement of said platform structure relative to stationary objects.

4,335,383

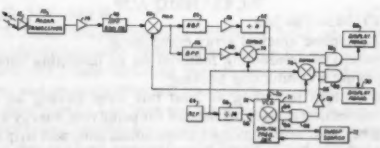
METHOD AND APPARATUS FOR DIGITALLY DETERMINING THE SPEED OF A TARGET VEHICLE WHILE THE RADAR PLATFORM VEHICLE IS IN MOTION

Fred M. Berry, Lenexa, Kans., assignor to Kustom Electronics, Inc., Lenexa, Kans.

Continuation of Ser. No. 11,210, Feb. 12, 1979, abandoned. This application 1980, Ser. No. 204,587

Int. Cl.³ G01S *13/58*

U.S. Cl. 343—8 **35 Claims**



1. A frequency discriminator for use in a doppler radar device operable to determine the speed of a target vehicle

when the radar platform vehicle is moving, said doppler radar device having a receiving means operable to receive a composite doppler signal having frequency components relating to the speed of said target vehicle and the speed of said radar platform vehicle, said frequency discriminator comprising:

means for frequency translating the received doppler signal to lock one of the frequency translated components to a preselected reference frequency;

means for separating the frequency translated doppler signal into a first frequency translated component and a second frequency translated component;

means for frequency translating said first frequency translated component to produce a signal suitable for a first speed measurement display.

4,335,384

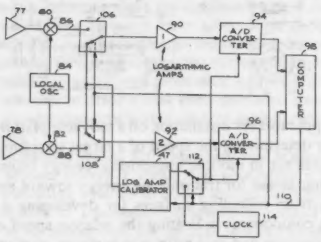
LOGARITHMIC AMPLIFIER CALIBRATION MEANS

John C. Roos, Thousand Oaks, Calif., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed 1980, Ser. No. 110,892

Int. Cl.³ G01S *5/02*

U.S. Cl. 343—114 **14 Claims**



1. In an amplitude comparison, direction finding receiving system having at least two channels, each channel of which includes a receiver and an associated logarithmic amplifier, a calibration means for said logarithmic amplifiers comprising:

first means for generating an exponentially decaying calibration signal;

second means for generating a plurality of sample pulses each separated by a time increment corresponding to a predetermined db change in said calibration signal;

means for connecting said calibration signal to said logarithmic amplifiers; and

means for determining the output of each of said logarithmic amplifiers at the time of each of said sample pulses, thereby providing a plurality of calibration points for each of said logarithmic amplifiers.

4,335,385

STRIPLINE ANTENNAS

Peter S. Hall, Swindon, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed 1979, Ser. No. 55,259

Claims priority, application United Kingdom, 1978, 29460/78

Int. Cl.³ H01Q *1/38*

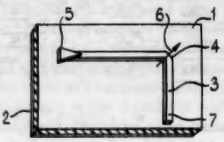
U.S. Cl. 343—700 MS **16 Claims**

1. A stripline antenna array comprising:

a pattern of conducting material on an insulating substrate having a conducting backing;

said pattern including at least one strip having an input connection at one end thereof for supplying energy to said array, said array having a longitudinal axis, said strip being configured to turn through successive right-angle corners to form a plurality of transverse sections that are substantially normal to the longitudinal axis of, and spaced along, the array, each transverse section being connected to the next succeeding transverse section by one of a plurality of longitudinal sections that are substantially parallel to the longitudinal axis of the array;

the array being substantially divisible longitudinally into a plurality of similar successive strip-portions all containing the same number of corresponding right-angle corners,



the angular configuration of the corners and the section lengths between successive corners being such in relation to a given operating wavelength in said strip that, when said strip is appropriately terminated, the phases of the resultant diagonally-polarized radiation from the corners in each strip-portion produce, in sum, the same predetermined polarization direction from all the cells.

4,335,386

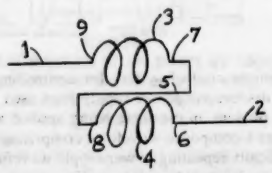
BIFILAR ANTENNA TRAP

Robert H. Johns, 3379 Papermill Rd., Huntingdon Valley, Pa. 19006

Continuation-in-part of Ser. No. 162,928, Jul. 17, 1980. This application 1981, Ser. No. 222,241

Int. Cl.³ H01Q *9/20, 1/14*

U.S. Cl. 343—722 **5 Claims**



5. An antenna system having at least two wire radiating portions including a parallel resonant trap between them, said trap comprising

a bifilar winding of two capacitively coupled wire coils insulated from one another,

an electrical cross-connection between opposite ends of said bifilar coils formed by the continuation of the wire of one coil into the opposite end of the other coil,

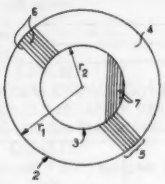
electrical connections between said antenna radiating portions and said coils, formed by a continuation of the wire of said radiating portions into the ends of said coils that are not a part of said cross-connection, whereby the antenna system made up of traps and radiating portions is formed from a continuous length of wire.

4,335,387

RADAR ANTENNA WITH ROTATING LINEAR POLARIZATION DESIGNED TO REDUCE JAMMING

Francois Salvat; Jean Bouko, and Jean Le Foll, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed 1980, Ser. No. 158,794
Claims priority, application France, 1979, 79 15139
Int. Cl.³ H01Q *15/24*; G01S *7/36*; H01Q *19/00*
U.S. Cl. 343—756 5 Claims



1. A Cassegrain-type radar antenna with rotating linear polarization, comprising:

a source of linearly polarized outgoing radiation centered on an axis;

a paraboloidal principal reflector centered on said axis, said principal reflector including a solid concave mirror and a first array of linear conductors disposed in parallel planes including an angle of 45° with the direction of polarization of said outgoing radiation, said first array being spaced from said mirror by a distance differing substantially from a quarter wavelength at the midfrequency of said outgoing radiation; and

an auxiliary reflector centered on said axis opposite said source and said principal reflector, said auxiliary reflector being formed from a second array of linear conductors disposed in planes parallel to one another and to said direction of polarization for directing the outgoing radiation from said source toward said principal reflector from which said radiation is sent out with elliptical polarization in an axially extending beam, said auxiliary reflector having a radius less than that of said principal reflector for intercepting only a central part of said beam and passing only a component of the radiation thereof with linear polarization perpendicular to said direction, the radiation in an annular part of said beam not intercepted by said auxiliary reflector retaining said elliptical polarization.

4,335,388

NULL CONTROL OF MULTIPLE BEAM ANTENNA

William G. Scott, Saratoga; Edgar W. Matthews, Jr., Los Altos; Howard H. S. Luh, Sunnyvale, all of Calif., and Charles A. Klein, Centerburg, Ohio, assignors to Ford Aerospace & Communications Corp., Dearborn, Mich.

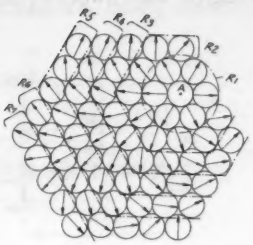
Continuation of Ser. No. 13,597, Feb. 21, 1979, abandoned. This application 1980, Ser. No. 168,964
Int. Cl.³ H01Q *3/30*
U.S. Cl. 343—854 21 Claims

1. An antenna assembly comprising:

a plurality of antenna elements for radiating and receiving electromagnetic energy;

a single processing means, such as a transmitter or receiver, for processing signals acted upon by said antenna assembly;

a beam forming network including a plurality of ports associated with said antenna elements and phase rotation means coupled between said processing means and said antenna elements for producing a substantially frequency independent null by adjusting the phase of a signal applied to each of said antenna elements so that with respect to a null point there are equidistant rings of beams with equal amplitude and phase increments of



$$(M)\frac{360°}{N_R},$$

wherein N_R is the number of beams per equidistant ring set and M is an integer;

said beam forming network including variable power divider means for splitting and combining power two ways in any ratio;

said beam forming network including variable phase shifter means coupled to said plurality of ports for adjusting the phase of the signal exciting each one of said plurality of ports associated with said antenna elements;

said variable phase shifter means being adapted to adjust the phase of adjacent beams in an equidistant ring with respect to the null point so that the phase difference between adjacent beams is

$$(M)\frac{(360°)}{N_R},$$

the phase of the signal applied to one of said antenna elements being equal to the amount of rotation of the center of the antenna element about the null with respect to a reference line; and

said variable power divider means being adapted to adjust the amplitude of phasors associated with the beams in an equidistant ring so that there are sequentially phased signal phasors adding to zero amplitude to form a null and any constituent beam sidelobe frequency changes remain balanced at the intended null direction thus cancelling out and maintaining an advantageously deep null in spite of a frequency change or increased bandwidth of a given signal.

4,335,389

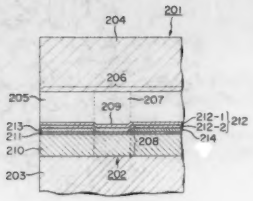
LIQUID DROPLET EJECTING RECORDING HEAD

Yoshiaki Shirato, Yokohama; Yasushi Takatori, Sagamihara; Toshitami Hara, Tokyo; Yukuo Nishimura, Sagamihara, and Michiko Takahashi, Higashi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 133,140
Claims priority, application Japan, 1979, 54-36041; 1979, 54-171335
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R 11 Claims

1. A liquid droplet ejecting recording head comprising a liquid ejecting portion including an orifice for ejecting liquid droplets and a heat actuating portion communicated with the orifice, and an electrothermal transducer as a means for generating heat energy, the heat energy acting on the liquid at the heat actuating portion for ejecting liquid droplets, characterized in that the part contacting the liquid of the heat actuating portion is made of a material whose ΔW is not more than one-tenth of 1 mg/cm^2 where ΔW is a decrement weight of the material per unit area in mg/cm^2 at a time "t", when subjected

to a weight decreasing test, the "t" being a time at which $\Delta W(Al)$ is 1 mg/cm^2 where $\Delta W(Al)$ is a decrement weight of



an aluminum plate of 99.9% in purity per unit area of the tested surface when subjected to the weight decreasing test.

4,335,390

CATHODE RAY TUBE PRINTING APPARATUS AND METHOD

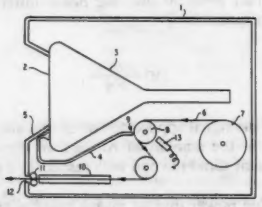
John G. Axford, Winchester, England, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed 1979, Ser. No. 101,343

Claims priority, application United Kingdom, 1978, 49993/78

Int. Cl.^{3} G01D *15/06*

U.S. Cl. 346—158 **13 Claims**



1. Apparatus for producing hard copy of an optical image displayed on a faceplate of a raster-scanned CRT display device comprising in combination:

a raster-scanned CRT display device having a faceplate;

a plurality of light fibers supported in a row along a preselected scan line position on said faceplate arranged to collect light emitted from contiguous regions along said scan line position and to transmit any such light to corresponding positions along a print row remote from said CRT faceplate;

means for supporting a print receiving medium at said print row, the arrangement being such that, in use, an image of the light transmitted by said fibers is produced in said medium;

means for moving said medium supported at said print row in a direction transverse to said print row;

display logic operable to produce successive cycles of operation, each cycle including a display mode and a print mode, said display logic operable to display a raster screened image on the faceplate of said CRT during said display mode and operable in said print mode, in response to the rate of movement of said medium, to control the supply of successive raster-scanned lines of said image to said preselected scan line position, so that images resulting therefrom representing successive raster scan lines of the image are produced in corresponding print line positions in said medium; and

means operable to develop images so produced.

4,335,391

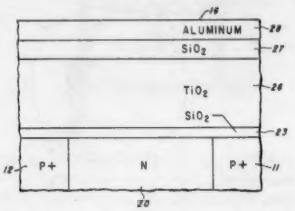
NON-VOLATILE SEMICONDUCTOR MEMORY ELEMENTS AND METHODS OF MAKING

Henry B. Morris, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed 1978, Ser. No. 968,544

Int. Cl.^{3} H01L *29/78*

U.S. Cl. 357—23 **11 Claims**



1. A memory element comprising:

a semiconductor body, comprising source and drain regions formed therein, and comprising a channel region which connects said source region with said drain region within said semiconductor body;

a first insulating layer, disposed upon said body above said channel region;

a second insulating layer, on said first insulating layer, said second insulating layer having a dielectric constant which is greater than 15;

a third insulating layer on said second insulating layer, said third insulating layer comprising silicon dioxide; and

a conducting layer on said third insulating layer.

4,335,392

SEMICONDUCTOR DEVICE WITH AT LEAST TWO SEMICONDUCTOR ELEMENTS

Karl Reiter, Mannheim, Fed. Rep. of Germany, assignor to Brown, Boveri & Cie Aktiengesellschaft, Mannheim, Fed. Rep. of Germany

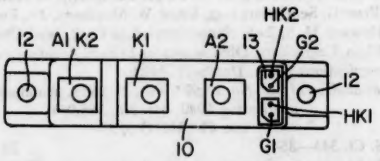
PCT No. PCT/DE79/00020, § 371 Date 1979, § 102(e) Date 1979, PCT Pub. No. WO79/00817, PCT Pub. Date 1979

PCT Filed 1979, Ser. No. 175,208

Claims priority, application Fed. Rep. of Germany, 1978, 7808801[U]

Int. Cl.^{3} H01L *23/16, 23/32, 29/74*

U.S. Cl. 357—75 **5 Claims**



1. In a semiconductor device, including a housing having a surface, at least two semiconductor elements in the housing in the form of wafers at least one of which being controllable, electrodes for said semiconductor elements being insulated and passivated at the peripheries of the elements and being electrically connected to each other, said electrodes being in the form of main anode and cathode terminals as well as a main center tap terminal provided if said semiconductor elements are connected in series, said main terminals being provided for connection to relatively heavy wires and to first relatively thin wires, and control terminals for connection to second relatively thin wires, each of said terminals being disposed so as to extend through said surface of said housing, wherein the im-

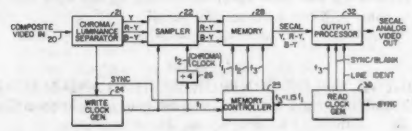
provement comprising an additional auxiliary cathode connection terminal disposed in said housing and extending through said surface thereof as separate terminals for each cathode of said controllable semiconductor elements for connection to the first relatively thin wires normally connected to said main terminals, each of said auxiliary cathode terminals and the corresponding control terminal of each of said semiconductor elements being disposed adjacent to one of said main terminals and relatively far from each other.

4,335,393

METHOD AND SYSTEM USING SEQUENTIALLY ENCODED COLOR AND LUMINANCE PROCESSING OF VIDEO TYPE SIGNALS TO IMPROVE PICTURE QUALITY

Gilbert J. Pearson, Sunnyvale, Calif., assignor to Harris Video Systems, Inc., Sunnyvale, Calif.

Filed 1980, Ser. No. 140,550
Int. Cl.³ H04N *5/76, 9/42, 9/32, 9/535*
U.S. Cl. 358—4 **75 Claims**



68. Apparatus for recording video signals comprising:

means for receiving video signals having a line scan format that includes, in serial form, a timing signal, a color reference signal, and a superimposed luminance and chrominance signal, each signal occupying a predetermined portion of each line;

means for modifying said video signals into a line scan format having a time duration that is a function of the duration of each line of said received signals and including in serial form, a timing signal, a separate luminance signal, and a separate chrominance signal, wherein the time duration of each modified line is substantially equal to the time duration of each line of the received signals, the combined time duration of the luminance and chrominance signals of each modified line is greater than the time duration of the superimposed luminance and chrominance signals and less than the time duration of each line of the received signals, and the time duration of the luminance signal of each modified line is less than the time duration of the superimposed luminance and chrominance signals, and

means for recording said modified video signals.

4,335,394

CROSSTALK FILTERING ARRANGEMENT WITH VARIABLE FREQUENCY FILTERING TO REMOVE EFFECTS OF FM CARRIER

Henry R. Warren, Belle Mead, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1979, Ser. No. 105,111
Int. Cl.³ H04N *5/795*
U.S. Cl. 358—8 **15 Claims**

1. An improved two-channel arrangement comprising:

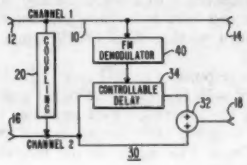
a first signal channel carrying a frequency-modulated carrier signal;

a second signal channel;

coupling means coupling said first and second signal channels together whereby said frequency-modulated carrier signal appears in said second signal channel;

wherein the improvement comprises

variable-frequency filter means coupled to said first and second signal channels for filtering from said second signal channel signals at the instantaneous frequency of said frequency-modulated carrier signal.

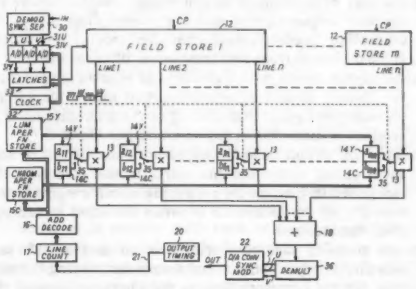


4,335,395

STANDARDS CONVERSION OF COLOR TELEVISION SIGNALS

Christopher K. P. Clarke, Crawley, England, assignor to British Broadcasting Corporation, London, England

Filed 1980, Ser. No. 185,068
Claims priority, application United Kingdom, 1979, 7934695
Int. Cl.³ H04N *9/42*
U.S. Cl. 358—11 **4 Claims**



1. Apparatus for conversion of colour television signals between standards using different numbers of lines per field and fields per second, comprising first storage means storing separately luminance and chrominance information pertaining to a plurality of lines of a plurality of fields of an input signal, second storage means storing in respect of each line of an output signal a set of luminance weighting coefficients and a set of chrominance weighting coefficients providing separate interpolation aperture functions for luminance and chrominance information, and means arranged to form luminance and chrominance signals on an output line-by-line basis by summing the products of the coefficients of the respective set and the stored information to which the coefficients apply.

4,335,396

AUTOMATIC EQUALIZATION SYSTEM FOR TELEVISION RECEIVER

Theodore S. Rzeszewski, Lombard, Ill., assignor to Matsushita Electric Corporation, Franklin Park, Ill.

Filed 1980, Ser. No. 206,648
Int. Cl.³ H04N *9/535*
U.S. Cl. 358—21 R **8 Claims**

1. An equalization circuit for a television receiver for automatically compensating for linear waveform distortion occurring in the composite television signal, which includes a VIR reference signal as a part thereof, said circuit including in combination:

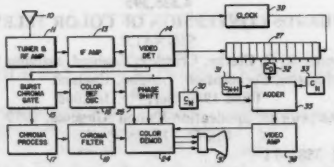
transversal filter means having an input and including delay

means with a plurality of output taps for providing output signals at successively increased delay times with predetermined time intervals between them;

reference signal generating means for generating a reference signal corresponding to a predetermined portion of said VIR signal and having the same characteristics as such predetermined portion of said VIR signal as originally transmitted;

timing means responsive to said received television signal and coupled with said reference signal generating means for causing the reference signal generated thereby to be generated with the same timing as said predetermined portion of said VIR signal in the received composite television signal;

means for applying the received composite television signal to the input of said filter means and to said timing means;



a plurality of adjustment circuit means coupled to the respective output taps of said transversal filter means for controlling predetermined characteristics of the signals applied thereto from said transversal filter means;

adder circuit means with a plurality of inputs coupled with the outputs of said adjustment circuit means for adding together the signals from said adjustment circuit means to produce a combined signal on an output thereof;

comparison circuit means coupled with the output of said adder circuit means and the output of said reference circuit generating means for producing an error signal representative of the difference between the input signals applied thereto; and

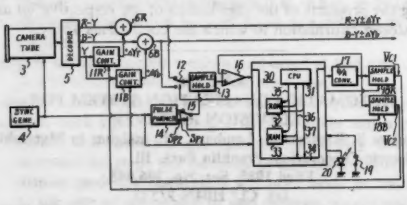
means coupling said comparison circuit means with said plurality of adjustment circuit means for varying the outputs thereof corresponding to the characteristics of the error signal produced from said comparison circuit means.

4,335,397

METHOD AND APPARATUS FOR DIGITALLY ADJUSTING WHITE BALANCE

Eiji Tamura, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed 1980, Ser. No. 162,640
Int. Cl.³ H04N *9/535*
U.S. Cl. 358—29 **10 Claims**



1. A method of adjusting the white balance of a video signal formed of a luminance component and at least a first color difference signal, and having video scanning intervals and blanking intervals; and which uses a microcomputer including a memory device having at least first and second addressable storage locations, comprising the steps of:

sampling a reference video signal during one of said blanking intervals;

analog-to-digitally converting the sampled reference video signal to form a digital reference signal;

storing said digital reference signal in said first storage location of said memory device;

sampling said first color difference signal during one of said video scanning intervals;

analog-to-digitally converting the sampled first color difference signal to form a first digital color difference signal;

storing said first digital color difference signal in said second storage location of said memory device;

modifying the stored first digital color difference signal stored in said second storage location so that the modified stored first digital color difference signal has a digital value related to the difference between said stored first digital color difference signal and said digital reference signal stored in said first storage location;

forming a first color difference correction signal that varies with the luminance component and is proportional to the value of the modified stored first digital color difference signal; and

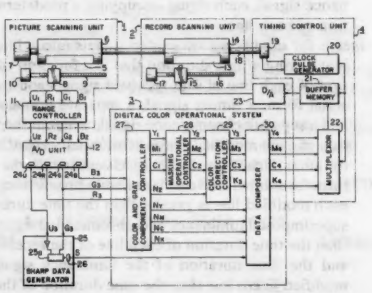
combining said first color difference signal with said first color difference correction signal.

4,335,398

DIGITAL COLOR CONTROL METHOD AND MACHINE

Mitsuhiko Yamada, Kyoto, Japan, assignor to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan

Filed 1980, Ser. No. 142,650
Claims priority, application Japan, 1979, 54-49077; 1979, 54-49078; 1979, 54-49079
Int. Cl.³ G03F *3/00*
U.S. Cl. 358—80 **36 Claims**



1. A digital color control method for use in a picture reproducing process, comprising the steps of:

(a) obtaining original picture color signals of primary colors by photo-electrically scanning an optical picture;

(b) carrying out a gray component separation process comprising the steps of:

(i) providing first memory tables each having one-to-one relation between its input and output for effecting desired correction and compensation in the final finish in the reproduction of the original picture,

(ii) determining a reference highlight level of the original picture signals,

(iii) setting up an under-color reduction ratio,

(iv) obtaining a gray component data signal as the difference between the reference highlight level of the original picture color signals and the maximum of the levels of the primary color components of the original picture color signals,

(v) obtaining a first signal corresponding to the amount of black ink to be used in the reproduction of the original

picture as the product of the undercolor reduction ratio and the level of gray component data signal,

(vi) obtaining a second signal corresponding to the level of the gray component data signal remaining after subtracting the first signal therefrom,

(vii) obtaining third signals corresponding to the levels of the primary components remaining after subtracting the full gray component from the corresponding primary color components, and

(viii) supplying the second signal to the first memory tables for obtaining from their outputs the amount of the ink of each of the primary colors and the amount of black ink for attaining a desired black color through the combined use of the ink of the primary colors and the black color;

(c) a color masking process, comprising the steps of:

(i) providing second memory tables each corresponding to one of the primary colors and having one-to-one relation between its input and output,

(ii) supplying the third signals to the inputs of the second memory tables, and

(iii) obtaining masking color signals as the sums of the outputs from the second memory tables;

(d) a color correction process, comprising the steps of:

(i) providing third memory tables, each having one-to-one relation between its input and output, for effecting a desired color correction and compensation in the finish of the reproduction of the original picture,

(ii) determining which of a plurality of sectors in a color plane the masking color signals are identified with,

(iii) carrying out an arithmetic process between the masking color signals,

(iv) supplying the result of the arithmetic process to the inputs of the third memory tables each corresponding to the each of color data signals which are usable for the reproduction of the original picture, and

(v) adding each of the outputs of the third memory tables to each one of the masking color signals to which the third memory table corresponds; and

(e) composing the color data signals by combining the outputs from the second and third memories corresponding to the primary color of each of the color data signals for each of the primary colors.

28. A digital color control machine for use in a picture reproducing machine, for correcting the color tone of an original picture in the reproduction of the original picture, comprising:

a first discriminator for identifying which of a plurality of sectors in a color plane color signals obtained from the original picture are located in,

a second discriminator for carrying out an arithmetic process between two primary color components of the original picture signals, and

a plurality of memory tables, each corresponding to one of the sectors in the color plane, for associating the output from the second discriminator with a set of certain color correction data.

4,335,399

NORMALIZING CIRCUIT FOR COLOR PRINTING SYSTEM

Fumio Matsumoto, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed 1980, Ser. No. 159,620

Claims priority, application Japan, 1979, 54-76626

Int. Cl.³ G03F *3/00*

U.S. Cl. 358—80 **12 Claims**

1. A normalizing circuit for conducting sensitivity correction and gamma correction in accordance with a sensitivity correcting signal and a gamma correcting signal from a computer, and in accordance with a density signal, comprising:

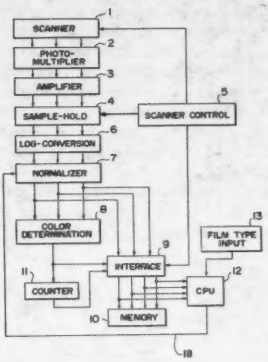
first latching means for latching said sensitivity correcting signal from said computer,

D-A converter means connected to said first latching means for converting the latched sensitivity correcting signal into an analog signal comprising an output current,

current-voltage conversion means connected to said D-A converter means for converting the output current of the analog signal of the D-A converter means to a voltage output,

first operational amplifier means connected to said current-voltage conversion means for combining the signal from the current-voltage conversion means with said density signal to provide an amplifier output signal,

second latching means for latching said gamma correcting signal from said computer,



an analog switch circuit connected to said second latching means and comprising a plurality of analog switches switchably operated by the latched gamma correcting signal,

a resistor array comprising a plurality of resistors connected to said analog switches so as to be selectively connected in series or in parallel with each other as selectively connected by said analog switches, and

second operational amplifier means connected to said first operational amplifier means for amplifying the amplifier output signal from said first operational amplifier means, said second operational amplifier means being connected to said resistor array.

4,335,400

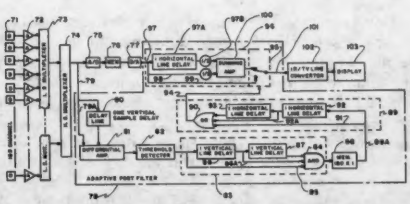
ADAPTIVE POST-FILTER FOR INFRARED SCAN CONVERTER

Sen-Te Chow, Alexandria, and Tsan H. Lin, Vienna, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed 1980, Ser. No. 199,419

Int. Cl.³ H04N *5/14, 5/21, 5/33*

U.S. Cl. 358—113 **2 Claims**



1. In a FLIR system having a vertical line array of detectors over which an IR image is scanned over horizontally each field period with a multiplexer coupled to and sampling said detec-

tors sequentially and periodically many times over each said field period to generate pixels at a multiplexer output terminal and having a digital-scan-converter coupled to said multiplexer output terminal which stores said pixels for an integral number of field periods and regenerates them at a converter output terminal at the same field rate but in a sequential horizontal line format; an adaptive postfilter circuit comprising:

a pulse actuated solid state single pole double throw terminal switch with a first normally open and a second normally closed throw terminal, a control terminal responsive to an input control pulse to reverse the state of said throw terminals for one sequential horizontal line period, said single pole being the postfilter output terminal, and said normally closed throw terminal being directly connected to said converter output terminal;

a low pass filter connected between said converter output terminal and said first normally open throw terminal;

a threshold detector means having an input terminal coupled to said multiplex output terminal to generate a control pulse at a threshold output terminal when the difference in the level of two successive pixels in time exceeds a preselected level; and

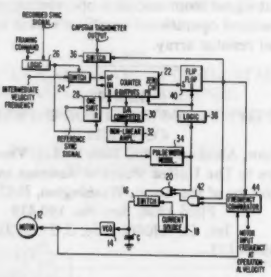
a field delay means connected between said threshold output and said control terminal to delay said control pulse at least until the beginning of a subsequent field period.

4,335,401

RAPID CORRELATION OF RECORDED INFORMATION

George S. Zorbalas, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 181,998
Int. Cl.³ G11B *15/46*
U.S. Cl. 358—127 **5 Claims**



1. In a replay system of the type wherein a recorded medium having a sync signal recorded thereon to identify discrete segments of information is accelerated to its operational velocity from an intermediate velocity during a framing cycle in which the acceleration is accomplished in distinct intervals between which a constant velocity interval is maintained to phase lock the recorded sync signal with an external reference sync signal when the operational velocity is reached, the improvement comprising:

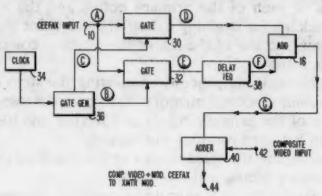
control means for establishing the total duration of the acceleration and constant velocity intervals to correspond with the time taken by the recorded medium to travel through a distance equal to two consecutive spaces between recorded sync signal pulses.

4,335,402

INFORMATION TRANSMISSION DURING FIRST-EQUALIZING PULSE INTERVAL IN TELEVISION

David D. Holmes, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 206,946
Claims priority, application United Kingdom, 1980, 8021570
Int. Cl.³ H04N *7/08*
U.S. Cl. 358—147 **10 Claims**



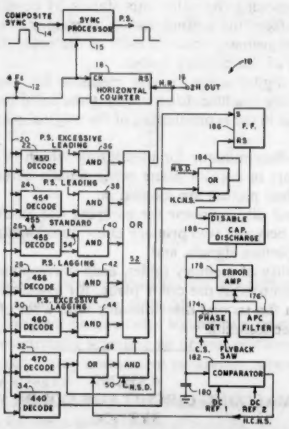
1. A method comprising transmitting a standard television signal, and transmitting an additional information signal during the first equalizing pulse interval of said standard television signal by dividing said additional signal into first and second time intervals separated in time by the duration of an equalizing pulse.

4,335,403

HORIZONTAL COUNTDOWN SYSTEM FOR TELEVISION RECEIVERS

Gopal K. Srivastava, Buffalo Grove, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed 1981, Ser. No. 223,611
Int. Cl.³ H04N *5/04*
U.S. Cl. 358—148 **14 Claims**



1. In a television receiver which receives composite sync and which supplies a color oscillator signal and a flyback pulse to a horizontal countdown system for use in generating horizontal scan drive pulses, an improved horizontal countdown system, comprising:

a counter for counting the cycles of the color oscillator signal;

a plurality of decoders, each of which senses a different selected state of the counter for developing a decoder output pulse in response to such sensing, one of said decoders being a standard decoder selected to sense a standard state indicative of a standard relationship between

the frequency of the color oscillator signal and the frequency of the composite sync;

gate means having an input for receiving input pulses and an output at which each input pulse is translated to a horizontal scan drive pulse;

error detection means receiving the flyback pulse and a signal representative of composite sync for sensing their relative phases, for developing a "standard" signal when the signal representing composite sync is in phase with the flyback pulse, and for developing a "non-standard" signal when non-standard composite sync is sensed;

means responsive to the "standard" signal for coupling the standard decoder's output pulse to the input of said gate means so as to develop a horizontal scan drive pulse;

means coupling each horizontal scan drive pulse to the counter for resetting the counter;

phase correction means including an analog phase locked loop responsive to the composite sync and the flyback pulse for sensing phase error therebetween and for generating a phase-corrected pulse; and

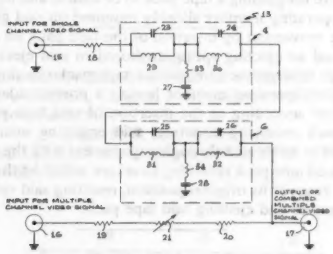
means responsive to the "non-standard" signal for deselecting the standard decoder and for coupling the phase-corrected pulse to the input of said gate means so as to reset the counter and develop a horizontal scan drive pulse which is phase locked to composite sync.

4,335,404

VIDEO SIGNAL MIXER APPARATUS AND METHOD

John R. Martinson, Jr., 453 N. Doheny Dr., Apt. C, Beverly Hills, Calif. 90210

Filed 1980, Ser. No. 195,797
Int. Cl.³ H04N *5/44*
U.S. Cl. 358—188 **12 Claims**


INPUT FOR SINGLE CHANNEL VIDEO SIGNAL
INPUT FOR MULTIPLE CHANNEL VIDEO SIGNAL
OUTPUT OF COMBINED MULTIPLE CHANNEL VIDEO SIGNAL

1. A video signal mixer for imposing a single channel video signal onto an unused channel of a multiple channel video signal comprising:

(a) single channel input means for connection to a single channel video signal;

(b) multiple channel input means for connection to a multiple channel video signal;

(c) attenuator means for attenuating the signal strength of the multiple channel video signal, said attenuator means having an input connected to said multiple channel input means and an output; and

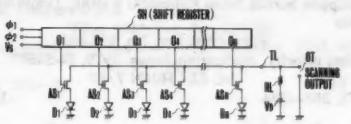
(d) mixer means for mixing the output from said attenuator means with the single channel video signal, said mixer means having a first input connected to said single channel input means, a second input connected to the output of the said attenuator means, and output means for delivering the combined multiple channel signal which is produced.

4,335,405

MOS-IMAGE SENSOR

Toshio Sakane, and Tokuichi Tsunekawa, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed 1980, Ser. No. 142,749
Claims priority, application Japan, 1979, 54-52621
Int. Cl.³ H04N *3/15*
U.S. Cl. 358—213 **14 Claims**



1. In a solid state linear MOS-image sensor comprising:

a one-dimensional array of a plurality of radiation sensitive elements each responsive to radiation and each integrating and storing electrical information relating to received radiation;

a readout switching arrangement coupled to each of said elements for reading out electrical information stored in the respective elements; and

readout switching control means coupled to said readout switching arrangement for controlling the readout switching arrangement so as to read out electrical information stored in the respective elements in a time-seriated manner;

the improvement comprising:

a reset switching arrangement coupled to each of said elements for resetting the respective elements; and

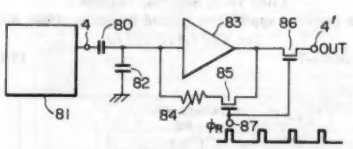
reset switching control means coupled to said reset switching arrangement for controlling the reset switching arrangement so as to reset the respective elements in a time-seriated manner.

4,335,406

SOLID-STATE IMAGING DEVICE

Shinya Ohba, Kokubunji; Masaharu Kubo, Hachioji; Iwao Takemoto, Tokyo; Shoji Hanamura, Kokubonji, and Masakazu Aoki, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 163,298
Claims priority, application Japan, 1979, 54-82630
Int. Cl.³ H04N *3/15*
U.S. Cl. 358—213 **6 Claims**



1. A solid-state imaging device having a sensor part in which optical signals detected in a plurality of photoelectric conversion elements disposed in a surface region of a semiconductor body are read out through first switching elements that are turned "on" and "off" by discontinuous scanning pulses having fixed interval times, and an amplifier which amplifies output signals of the sensor part, characterized by a feedback circuit connected between an output and input of said amplifier for feeding output signals of said amplifier back to said input thereof, a second switching element connected in said feedback circuit, and a third switching element connected between said output of said amplifier and an amplified signal-output terminal of said solid-state imaging device, said second and

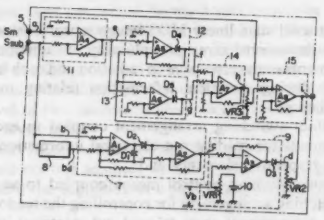
third switching elements being rendered conductive when said first switching elements are nonconductive.

4,335,407

SHARPNESS EMPHASIZING METHOD AND MACHINE USED IN A PICTURE REPRODUCING MACHINE

Hitomi Atoji, Kyoto; Masuo Kunisawa, Uji; Atsuro Hirata, Kyoto, and Yasuaki Araki, Kyoto, all of Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Tenjin-kitamachi, Japan

Filed 1980, Ser. No. 145,443
Claims priority, application Japan, 1979, 54-53507
Int. Cl.³ H04N *1/40*
U.S. Cl. 358—284 10 Claims



1. A sharpness emphasizing method used in a picture reproducing machine wherein an original picture is photoelectrically scanned to produce a main signal and an unsharp signal, comprising the steps of:

(a) obtaining a sharpness emphasizing signal by subtracting the unsharp signal from said main signal;

(b) obtaining a slice signal, from the unsharp signal by determining the difference between the unsharp signal with a certain delay and the unsharp signal without any delay, said slice signal suppressing the sharpness emphasizing signal except for when the unsharp signal makes a leap of a predetermined magnitude;

(c) selectively suppressing the sharpness emphasizing signal to produce a corrected sharpness emphasizing signal; and

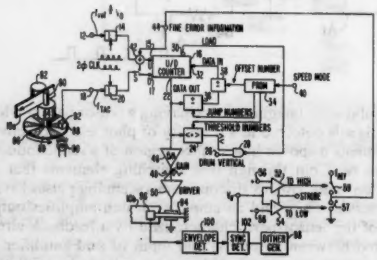
(d) adding the corrected sharpness emphasizing signal to the main signal to emphasize the sharpness thereof.

4,335,408

DIGITAL TRACKING SYSTEM

Konrad M. Dinter, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 153,969
Claims priority, application United Kingdom, 1980, 8011560
Int. Cl.³ G11B *21/10*
U.S. Cl. 360—77 17 Claims



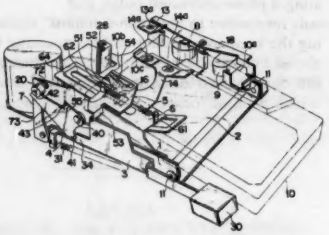
1. A method for generating a playback head position control signal, said method comprising measuring the playback speed of a record prerecorded at a nominal speed by using a tachometer coupled to a means for driving said record, comparing said measured speed to a reference signal having a frequency in accordance with said nominal record speed by counting in a first direction in accordance with the frequency of the signal from said tachometer, and counting in a second opposing direction in accordance with said reference signal frequency, and producing said control signal in accordance with said comparison.

4,335,409

TAPE PACK EJECTING MECHANISM FOR TAPE PLAYER

Tadashi Yokota; Wataru Watanabe, and Makoto Kondo, all of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 123,197
Claims priority, application Japan, 1979, 54-020765
Int. Cl.³ G11B *15/66, 5/78*
U.S. Cl. 360—96.6 5 Claims



1. A tape pack ejecting mechanism which comprises: a chassis; a tape pack receiving structure pivotally connected to said chassis so as to be tiltable thereto; a manually operable eject lever provided on said chassis; an engaging member pivotally connected to said chassis and adapted to engage with said eject lever; a guide member provided on said tape pack receiving structure for guiding a tape pack to be loaded and unloaded; an eject-operating member slidably mounted on said guide member for movement by insertion of the tape pack on said structure; and an ejecting spring anchored to said eject-operating member to urge the same into a tape pack ejecting position; said eject-operating member having a portion adapted to be stretched according to the insertion of said tape pack in the tape pack receiving structure; said engaging member being adapted to be rotated through engagement with the eject lever to tilt said tape pack receiving structure and to let the stretched spring recover its original position, resetting said eject-operating member and ejecting said tape pack.

4,335,410

THIN FILM MAGNETIC TRANSDUCER

William F. Neu, Oklahoma City, Okla., assignor to Magnex Corporation, San Jose, Calif.

Division of Ser. No. 3,380, Jan. 15, 1979, Pat. No. 4,260,450.
This application 1980, Ser. No. 137,137
Int. Cl.³ G11B *5/20*
U.S. Cl. 360—123 5 Claims

1. A thin film magnetic transducer, comprising:

a first conductive thin film having a configuration defining a lead portion, a throat portion, and a contact area portion terminating at a first position relative to the plane of the thin film;

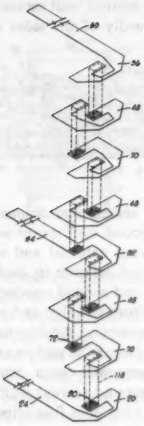
at least one even layer conductive thin film having a configuration beginning at said first position and extending to overlay a part of said lead portion, said throat portion, and terminating at a second position relative to the plain of the thin film that is adjacent said first position;

at least one odd layer conductive thin film having a configuration beginning at said second position and extending to

overlay a part of said lead portion, said throat portion, and terminating at said first position in superposition to the contact area of said first conductive thin film;

a last conductive thin film having a configuration beginning at said first position and extending to overlay a part of said lead portion, said throat portion, and terminating in a second lead portion;

insulative thin film means disposed between all of said conductive thin films;



means providing conductive contact between the first position of all odd layer conductive thin films and the similar position of the overlaid even layer conductive thin film; and

means providing conductive contact between the second position of all even layer conductive thin films and the similar position of the overlaid odd layer conductive thin film.

4,335,411

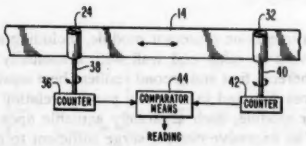
LENGTH COUNTER FOR WEB TRANSPORT SYSTEM

William A. Dischert, Camden, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 116,253

Int. Cl.³ G11B *15/18, 15/48;* **B65H** *23/08, 59/00*

U.S. Cl. 360—137 **2 Claims**



1. In a capstan drive, bi-directional web transport system of the type wherein the web travels between storage reels and a first tachometer is disposed toward one end of the web path for measuring web travel in the system, and in which the first tachometer includes a first roller in contact with the web, the improvement comprising:

a second roller disposed in contact with the web toward the other end of the web path and connected to drive a second tachometer whereby a different magnitude of slippage is encountered between each roller and the web for each direction of web movement to cause each tachometer to have a different accuracy for each direction of web movement, the second roller cooperating with the first roller through a comparator means for determining the more accurate tachometer reading from the readings of the first and second tachometers.

4,335,412

TRIAX SAFETY CIRCUIT

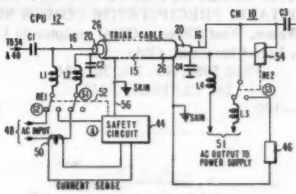
Felix Aschwanden, Thawil, Switzerland, assignor to RCA Corporation, Princeton, N.J.

Filed 1981, Ser. No. 234,541

Claims priority, application United Kingdom, 1980, 8029527

Int. Cl.³ H02H *3/16*

U.S. Cl. 361—50 **11 Claims**



1. A method for applying power from a first unit through a transmission line to a second unit, said method comprising applying a current to said transmission line at said first unit, sensing if said current is interrupted, ceasing the application of said current to said line upon sensing that said current has been interrupted, applying a selected impedance to said line at said second unit, sensing said selected impedance at said first unit, and reapplying power to said line at said first unit upon sensing at said first unit said selected impedance.

4,335,413

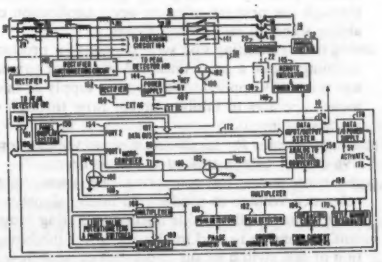
CIRCUIT INTERRUPTER WITH REMOTE INDICATOR AND POWER SUPPLY

Joseph C. Engel, Monroeville; John A. Wafer, Beaver; Bernard J. Mercier, Pittsburgh, and Joseph J. Matsko, Beaver, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 140,556

Int. Cl.³ H02H *3/04*

U.S. Cl. 361—93 **10 Claims**



1. Circuit interrupter apparatus, comprising:

interrupter means for conducting current through an associated circuit and for operating to interrupt current flow therethrough on command;

sensing means for sensing current flow through said interrupt means;

trip unit means connected to said sensing means and said interrupter means for comparing current flow through said interrupter means to a predetermined time-current trip characteristic and for operating said interrupter means when current flow therethrough exceeds said time-current trip characteristic, said trip circuit means comprising

output means for connecting said trip unit means to associated apparatus; said trip unit means further comprising means for monitoring power flow through said interrupter means, and for generating a demand alarm signal when said power flow exceeds a predetermined demand limit, and means for supplying said demand alarm signal to said output means; and

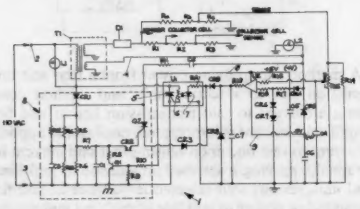
a remote indicator unit connected to said output means and located at a distance therefrom, said remote indicator unit comprising demand indicator means for indicating occurrence of said demand alarm signal.

4,335,414

AUTOMATIC RESET CURRENT CUT-OFF FOR AN ELECTROSTATIC PRECIPITATOR POWER SUPPLY

William G. Weber, West Chester, Ohio, assignor to United Air Specialists, Inc., Cincinnati, Ohio

Filed 1980, Ser. No. 202,314
Int. Cl.³ H02H *3/24*
U.S. Cl. 361—100 **15 Claims**



1. In a two stage electrostatic precipitator air cleaner of the type having an ionizer for charging airborne particles, a collecting cell for collecting the charged particles and power supply means responsive to a primary voltage for providing relatively high voltage to said ionizer and said cell comprising a ferroresonant transformer having a primary winding, a secondary winding for producing relatively high voltage, and means utilizing said high voltage to charge said ionizer and said collecting cell, the improvement in combination therewith comprising automatic electronic protection circuitry for said power supply including:

electronic switch means connected in series with said transformer primary winding for permitting current flow through the primary winding upon application of an enabling signal to said switch means;

timing means shunting said switch means for producing said enabling signal a predetermined time after primary voltage is initially applied to said power supply or said switch means operates to inhibit current flow through said primary winding;

attenuator means for producing a sense voltage representative of the voltage applied to said ionizer;

comparison means for comparing said sense voltage to a reference voltage to produce an inhibit signal when said sense voltage falls outside normal operating ranges; and

means responsive to said inhibit signal for inhibiting operation of said switch means to prevent current flow through said transformer primary winding to shut down power supply operation.

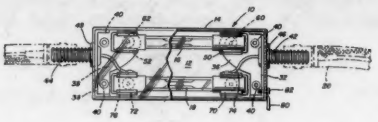
4,335,415

ANTENNA LIGHTNING ARRESTOR

William D. Hooberry, 114 Enterprise St., Brunswick, Ga. 31520

Filed 1980, Ser. No. 119,465
Int. Cl.³ H02H *7/20, 3/08*
U.S. Cl. 361—104 **2 Claims**

1. An antenna lightning arrestor including, in combination, a substantially planar non-conductive base having opposite ends and first and second side faces, a first conductive sheet overlying and mounted from one end of one side of said base, a second conductive sheet overlying and mounted from the other end of said one side of said base in insulative spaced relation relative to said first sheet, a first pair of opposite end fuse mounting clips conductively supported from and overlying the sides of said sheets remote from said base, a second pair of opposite end fuse mounting clips mounted from and overlying said one side of said base in non-conductive relation with said sheets, said first and second sheets including conductive outstanding first and second wall means supported therefrom and projecting outwardly of the sides of said sheets remote



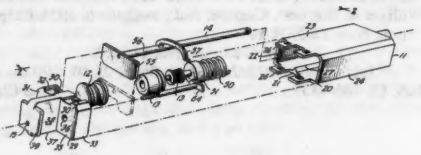
from said base, first and second connector means supported from said first and second wall means and comprising coaxial connectors each having external and internal portions non-conductively supported relative to each other, said external portions of said first and second conductor means being conductively supported from said first and second wall means and means electrically connecting the internal portions of said first and second connector means to said second pair of fuse mounting clips, and a transparent cover removably snap-fittingly engaged with said first and second wall means and enclosing said one side of said base, said fuse clips and said wall means therewithin.

4,335,416

TELEPHONE PROTECTOR MODULE HAVING FLAG INDICATOR

Thomas A. Hollfelder, Huntington, and Paul V. De Luca, Plandome Manor, both of N.Y., assignors to Porta Systems Corp., Syosset, N.Y.

Filed 1981, Ser. No. 234,209
Int. Cl.³ H02H *3/22*
U.S. Cl. 361—119 **3 Claims**



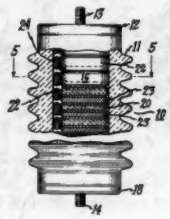
1. In a telephone protector module, including a casing element having an outer end wall with a manually engageable handle thereon, first and second resilient heat sensitive protector devices disposed in mutually parallel relation within said protector module, each separately actuable upon the occurrence of an excessive current surge sufficient to melt a fused component thereof to longitudinally shift a movable component thereon, the improvement comprising: a single flag indicator means including an elongated longitudinally shiftable rod-like member and a transversely extending member mounted upon an inner end thereof, said transversely extending member having first and second extremities each lying in the path of movement of a movable component of a heat sensitive protector device, and being otherwise free of engagement therewith, resilient means urging said rod-like member inwardly of said casing element, said handle having a longitudinally extending bore therein, said rod-like member having an outer terminal slidably disposed within said bore, and selectively projectable outwardly of said bore upon actuation of either of said heat sensitive protector devices.

4,335,417

HEAT SINK THERMAL TRANSFER SYSTEM FOR ZINC OXIDE VARISTORS

Eugene C. Sakshaug, Lanesborough, and Earl W. Stetson, Pittsfield, both of Mass., assignors to General Electric Company

Continuation-in-part of Ser. No. 939,792, Sep. 5, 1978, abandoned. This application 1980, Ser. No. 138,169
Int. Cl.[3] H02H 3/22
U.S. Cl. 361—127 6 Claims



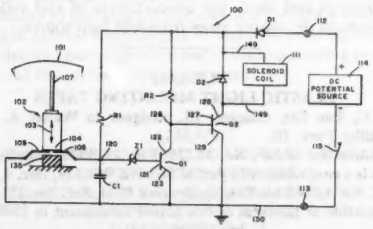
1. A voltage surge arrester comprising, in combination:
a generally cylindrical housing;
terminals mounted at opposed ends of said housing;
a plurality of zinc oxide disks, each disk having electrodes situated on opposed faces thereof; and
a plurality of heat sinks, each formed of an alloy of iron and having a volume equal to at least 25 percent of the volume of said individual disks and a thermal capacity at least equal to said individual disks, said disks and heat sinks being arranged in alternating fashion to create a stack situated within said housing and electrically connected as a serial array between said terminals, said heat sinks being in closely coupled, thermal relation with adjacent pairs of said disks and in electrical connection with said electrodes thereof;
whereby said heat sinks rapidly absorb heat from said disks to effectively limit the temperature rise thereof during the conduction of current therethrough under surge voltage conditions.

4,335,418

ELECTRONIC INTERRUPTER

Mark W. P. Clement, Owen Sound, Canada, assignor to General Signal Corporation, Stamford, Conn.

Filed 1980, Ser. No. 201,100
Int. Cl.[3] H01H 47/32
U.S. Cl. 361—152 11 Claims



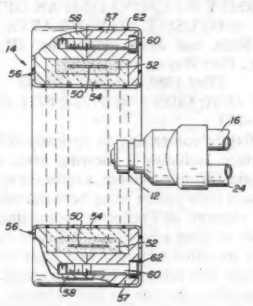
1. An electronic control means for controlling the application of dc potential to a control device, such as a solenoid actuating a reciprocally moving member moveable between rest and active positions and comprising in combination:
(a) a source of dc potential;
(b) the electronic control means being in circuit with said control device for selectively coupling said dc potential to said control device to actuate said moveable member and move it from a rest position to said active position;
(c) said electronic control means including a contact pair which is maintained closed and open when said moveable member is positioned at said rest and active positions, respectively;
(d) a capacitor included in said electronic control means and coupled in circuit with said contact pair for discharging and charging said capacitor when said contact pair is closed and open respectively; and wherein
(e) said electronic control means responds to the discharged and charged state of said capacitor by permitting and restricting, respectively, the flow of current from said dc source to said control device.

4,335,419

INSULATED DUST CONTROL APPARATUS FOR USE IN AN EXPLOSIVE ENVIRONMENT

Edward E. Hastings, 28 Wistar Rd., Villanova, Pa. 19085

Filed 1980, Ser. No. 198,739
Int. Cl.[3] B05B 5/02
U.S. Cl. 361—228 15 Claims

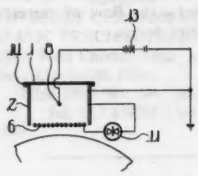


1. Apparatus for producing a spray of atomized and electrostatically charged particles of liquid to remove oppositely charged pollutants from an atmosphere, said apparatus being particularly suited for use in a potentially explosive atmosphere, comprising:
(a) a nozzle for receiving the liquid from a liquid supply and producing a spray of atomized liquid particles;
(b) a ring electrode coaxially surrounding the spray near the nozzle, the ring being chargeable to a high electrostatic potential relative to the nozzle whereby the liquid particles of the spray are inductively charged by passing through the ring, the electrode being fully encased in a ring of insulating material whereby liquid particles cannot contact the electrode;
(c) a metal housing surrounding the ring of insulating material on all sides except the radially interior side thereof, the housing being connected to ground potential; and
(d) a coating of insulating material covering the exposed surfaces of the metal housing and the ring of insulating material.

4,335,420
CORONA DISCHARGE DEVICE

Tanaka Mitsuo, Machida; Tagawa Kazuaki, and Yano Takashi, both of Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

PCT No. PCT/JP79/00183, § 371 Date 1980, § 102(e) Date 1980, PCT Pub. No. WO80/00276, PCT Pub. Date 1980
PCT Filed 1979, Ser. No. 209,101
Claims priority, application Japan, 1978, 53-84689
Int. Cl.³ H01T *19/04*
U.S. Cl. 361—230 **4 Claims**



1. A corona discharge device comprising a discharger having a wire for corona discharging, an electrically conductive shielding plate and grid wires; and an impedance element which is connected in series between said grid wires and the ground and which generates a voltage responsive to a corona current flowing into said grid wires; wherein said impedance element is connected between said grid wires and said electrically conductive shielding plate and is formed as a unitary structure with said discharger.

4,335,421
LIGHT FIXTURE, LIGHT APERTURE AND METHOD OF UNIFORMLY ILLUMINATING AN OPTICALLY DIFFUSIVE VIEWING AREA

Joseph W. Modia, and James McCarthy, III, both of 1508 Edenton Ct., Fort Wayne, Ind. 46804

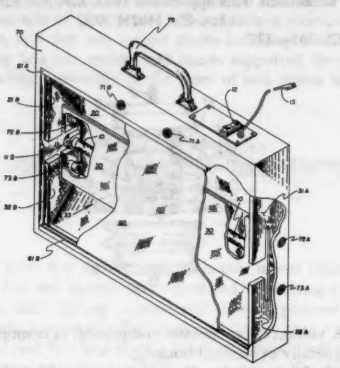
Filed 1980, Ser. No. 130,743
Int. Cl.³ G09F *13/10*; G02B *5/08, 27/14*; F21L *3/00*; F21V *7/12*
U.S. Cl. 362—223 **22 Claims**

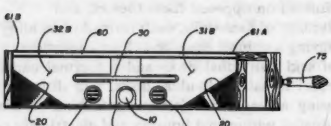
1. A light fixture comprising an optically diffusive element having a surface including a viewing area, a light source spaced from said diffusive element, a reflector spaced from said light source, said light source being between said reflector and said diffusive element, said reflector redirecting light incident thereon to said viewing area of said diffusive element, a tralucent substrate mounted between said light source and said diffusive element, said substrate having portions thereof which reflect light incident thereon to said reflector, said substrate having other portions thereof which transmit light therethrough onto said viewing area of said diffusive element, the light from said light source being also directly incident on said viewing area of said diffusive element, the light on said viewing area from said reflector being generally between said light on said viewing area transmitted through said substrate and said light on said viewing area directly incident thereon whereby said viewing area is generally uniformly illuminated.

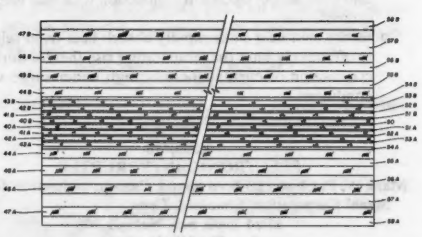
5. A method of uniformly illuminating a viewing area of an optically diffusive element by a light source comprising the steps of dividing the light from said light source into at least four portions, transmitting a first portion of light through a tralucent material and onto said viewing area, reflecting a second portion of light from said light source onto said tralucent material and transmitting said second portion of light through said tralucent material and onto said viewing area, reflecting a third portion of light from said light source directly onto said viewing area, permitting a fourth portion of light from said light source to shine directly on said viewing area, and arranging said second and third portions on said viewing area generally between said first and fourth portions.

15. A light aperture for use in generally uniformly illuminating a viewing area of an optically diffusive element of a light fixture, the aperture comprising:

a sheet of tralucent material adapted to be mounted between the viewing area and a light source with one surface of said sheet facing said light source, said sheet having portions of said one surface which are reflective of light incident thereon, said sheet having other portions of said one surface which allow light incident thereon to pass through said sheet, the concentration of said reflective portions decreasing away from said light source.







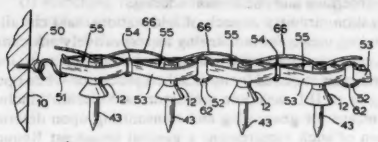
4,335,422
ELASTIC LIGHT MOUNTING TAPES

John C. Van Ess, Chicago, Ill., assignor to Walter A. Ross, Schiller Park, Ill.

Continuation of Ser. No. 14,225, Feb. 22, 1979, abandoned, which is a continuation-in-part of Ser. No. 966,439, Dec. 4, 1978, Pat. No. 4,244,014. This application 1980, Ser. No. 171,321
The portion of the term of this patent subsequent to 1998, has been disclaimed.
Int. Cl.³ F21V *21/00, 21/08*
U.S. Cl. 362—388 **12 Claims**

1. A mounting device for electric light sockets adapted to be strung along window frames and the like to position light bulbs in the sockets for display in the window or the like which comprises a tape having an elastic section adapted to be stretched to hold the tape in a taut condition along the window or the like, means along the length of said tape defining exter-

nally accessible pockets for releasably receiving the electric light sockets to project electric lights carried by the sockets



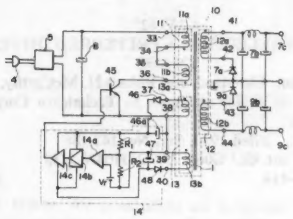
laterally from the tape, and fastener means for securing said tape to said window frame or the like and cooperating with said elastic tape section to maintain the tape in a taut condition.

4,335,423

TRANSFORMER

Akio Koizumi; Hiroshi Nakazawa, both of Tokyo, and Akira Endo, Tagajyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed 1980, Ser. No. 198,451
Claims priority, application Japan, 1979, 54-135801
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—21 **15 Claims**



1. A transformer comprising:

a magnetic core;

a primary winding structure associated with said magnetic core and including first and second primary winding portions;

a secondary winding structure associated with said magnetic core and including first and second secondary winding portions; and

a tertiary winding structure associated with said magnetic core and including first and second tertiary winding portions, said first tertiary winding portion being comprised of first and second windings connected in series and arranged in close proximity to said primary and secondary winding structures so as to provide a high degree of magnetic coupling between the first and second primary and secondary winding portions and the first tertiary winding portion.

4,335,424

CYCLING FIRING METHOD FOR BYPASS OPERATION OF BRIDGE CONVERTERS

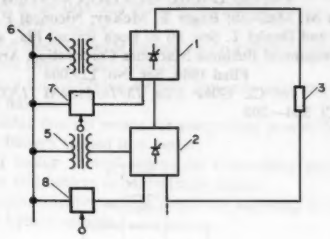
Zivan Zabar, 99-72 66th Rd., Apt. 9N, Forest Hills, N.Y. 11375

Filed 1980, Ser. No. 181,067
Int. Cl.³ H02H *7/125*
U.S. Cl. 363—54 **1 Claim**

1. A cyclic firing method for bypass operation of bridge converter, whereby a pair of the switching elements of the bridge itself, connected to the same phase, is fired simultaneously at a submultiple of the ac supply frequency, is performed in the following sequence:

a. gating pulses are transmitted to the elements in the first phase while all the others are fire-suppressed,

b. gating pulses are transmitted to the elements in the second phase while all the others are fire-suppressed,



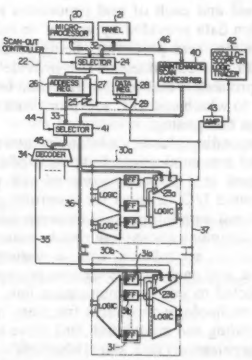
and so on, depending on the number of phases and then back in a cyclic order.

4,335,425

DATA PROCESSING APPARATUS HAVING DIAGNOSIS FUNCTION

Humio Goto; Chikahiko Izumi, and Riujiro Imai, all of Hadano, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed 1979, Ser. No. 103,405
Claims priority, application Japan, 1978, 53-165216
Int. Cl.³ G06F *11/32*
U.S. Cl. 364—200 **9 Claims**



1. A data processing apparatus having flip-flop circuits with a self-diagnosis function to permit diagnosis of internal states of operation of the data processing apparatus while the data processing apparatus is in the course of operation comprising:

(a) scan-out controlling means for generating a first scan-out address which designates first groups of said flip-flop circuits and receiving scan-out data which are outputs of flip-flop circuits designated by said first scan-out address, each of said first groups consisting of a plurality of second groups of said flip-flop circuits,

(b) an address generating circuit receiving said first scan-out address and generating in sequence second scan-out addresses for said second groups of each of said first groups designated by said first scan-out address,

(c) bit address generating means for generating a bit address which designates one of said flip-flop circuits,

(d) selector means selecting one of said second scan-out address and said bit address,

(e) outputting means responsive to said selector means for outputting outputs of said flip-flop circuits,

(f) transfer means for transferring said outputs to said scan-out controlling means, and

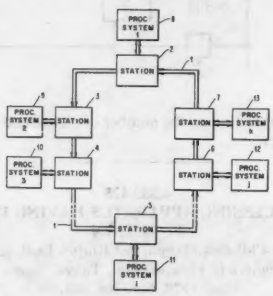
(g) observing means for observing said outputs.

4,335,426

REMOTE PROCESSOR INITIALIZATION IN A MULTI-STATION PEER-TO-PEER INTERCOMMUNICATION SYSTEM

Hiram M. Maxwell; Roger E. McKay; Niconedi P. Nacheber, Jr., and Daniel T. Sze, all of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed 1980, Ser. No. 129,004
Int. Cl.[3] G06F *3/04, 15/16;* H04M *11/00*
U.S. Cl. 364—200 **6 Claims**



1. An initialization arrangement for a communications system having a communications link and a plurality of processors, each of said processors having at least one Input/Output I/O channel and each of said processors requiring program initialization data provided by way of an initial program load IPL operation, said processors being respectively predesignated as IPL source processors that provide IPL data and IPL acceptor processors that receive IPL data from an IPL source processor to which said IPL acceptor processors are assigned, said system comprising:

a corresponding plurality of stations interconnected by way of said communications link, each of said stations being attached to a respective one of said processors via its associated I/O Channel for controlling transfer of command and data information between said processors over said communications link, such information being arranged in accordance with a variety of information frames, and each of said stations incorporating a modem connected to said communication link, said modem handling technology-dependent functions including information coding and modulation, link drive and receive, frame synchronization and data insertion, clock extraction, frame and data checking at the link level, and link initialization and available frame insertion, and the like, a link manager, said link manager connected to said modem providing logical frame management functions such as frame structuring, address decode and encode, control field encode and decode, data blocking and deblocking, physical interface protocol sequencing and checking, and data pacing, and the like, a storage section connected to said link manager, said storage section incorporating a control storage array including a respectively assigned storage subsection for each station in the system for storing control information for the respective stations, said storage section further incorporating a data storage array, including a respectively assigned storage subsection for each station in the system for storing data for the respective stations, said storage section further incorporating a work queue storage for storing work queues, and a channel interface controller connected to said storage section, said channel interface controller providing interfacing for its station with its respective processor I/O channel, said channel interface controller providing an individual subchannel for communication with the individual stations in said system and further providing facilities for synchronizing with the channel I/O interface for data transfer, presenting the station logic interface to the processor, multiplexing control required among the subchannels, and device address mapping between its respective processor I/O Interface and the station address;

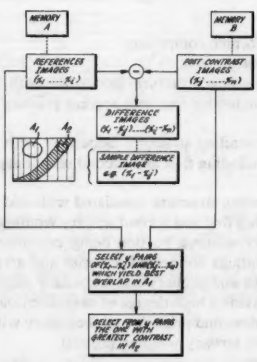
initialization circuitry at each of said stations, said circuitry including means for monitoring its respectively associated processor to determine when an initial program load operation is required by its attached processor when operating as an IPL acceptor processor, said circuitry including means for generating and transmitting upon determination of such requirement a general broadcast Request Initialization frame RIF for requesting initialization from an individual one of said processors operating as an IPL source processor, said circuitry at each station including means for detecting Request Initialization frames from any other station on said link and upon receipt of a said Request Initialization frame to determine if its attached processor is assigned to serve as said IPL source processor for said requesting IPL acceptor processor for transmission of IPL data, and IPL transmission means at each station for thereupon transmitting to transmit an IPL frame sequence including a Set Initialization frame SIF, a plurality of Initialization Data frame IDF containing initialization data from its attached IPL source processor, and an Initialization Termination frame ITF to provide complete initialization of said requesting IPL acceptor processor.

4,335,427

METHOD OF SELECTING A PREFERRED DIFFERENCE IMAGE

Willard F. Hunt, Cleveland, and Robert H. McCarthy, Chagrin Falls, both of Ohio, assignors to Technicare Corporation, Solon, Ohio

Filed 1980, Ser. No. 142,188
Int. Cl.[3] G06F *15/42;* H04N *5/32*
U.S. Cl. 364—414 **8 Claims**


MEMORY A
MEMORY B
REFERENCE IMAGES
POST CONTRAST IMAGES
DIFFERENCE IMAGES
SAMPLE DIFFERENCE IMAGE
SELECT N PAIRS WHICH YIELD BEST OVERLAP IN A1
SELECT FROM N PAIRS THE ONE WITH GREATEST CONTRAST IN Rp

1. A method of selecting one or more x-ray difference images from a group of x-ray images, which comprises the steps of:

(a) obtaining first and second pluralities of x-ray images of a patient or subject, each x-ray image being obtained at a different time;

(b) obtaining a sample difference image representing the difference between one of the images of the first plurality of images and one of the images of the second plurality of images;

(c) selecting a region of the sample difference image, the region being less than the entire area of the sample difference image;

(d) pairing images selected from the first plurality of images with images selected from the second plurality of images;

(e) obtaining a plurality of difference images each representing the difference between the images of one of the pairs of images;

(f) searching regions of the difference images, the searched regions corresponding, respectively, to the selected region of the sample difference image; and

(g) selecting one or more difference images, the selected difference images having searched regions that satisfy a predetermined condition or index.

4,335,428

ELECTRONIC SYSTEM FOR CONTROLLING AN AUTOMATIC TRANSMISSION IN RESPONSE TO CHANGES IN SLOPE

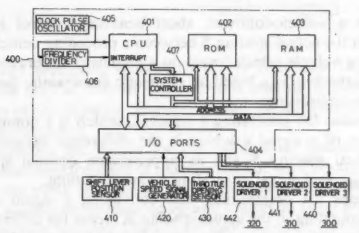
Nobuaki Miki; Mutsumi Kawamoto, both of Nagoya; Hiroyuki Amano, Chiryu; Tsuneo Hida, Toyokawa, and Tsuyoshi Yoshida, Toyota, all of Japan, assignors to Aisin-Waker Kabushiki Kaisha, Aichi, Japan

Filed 1980, Ser. No. 115,166

Claims priority, application Japan, 1979, 54-16483

Int. Cl.[3] G06F *15/20;* B60K *41/08*

U.S. Cl. 364—424 **8 Claims**



1. A system for controlling an automatic variable speed transmission including a hydraulic circuit having a plurality of oil pressure control valves and flow path switching means for selectively engaging or disengaging clutches and brakes of the transmission, and a plurality of solenoid valves associated with a shift operation, said system comprising electronic control means responsive to shift lever position, vehicle speed and throttle opening, and having gear ratio change reference data for providing control signals to said solenoid valves to thereby control the operation of the transmission wherein:

said electronic control means includes memory means having shared therein slope detecting reference data indicative of the upper and the lower limit value of vehicle speed corresponding to a throttle opening for each of a selected number of slope running loadings and for each speed stage: gear ratio means for detecting and comparing the actual speed stage, the actual throttle opening, the actual speed of the vehicle and the change rate of the actual speed against said slope detecting reference data and means to modify the gear ratio change reference data to inhibit up-shifting on a slope to prevent hunting of gear ratios on an up slope and an undue need for braking on a down slope.

4,335,429

CONTROL APPARATUS FOR ENGINE/ELECTRIC HYBRID VEHICLE

Shiro Kawakatsu, Suita, Japan, assignor to Daihatsu Motor Co., Ltd., Ikeda, Japan

Filed 1980, Ser. No. 129,718

Claims priority, application Japan, 1979, 54-34977

Int. Cl.[3] B60K *1/00*

U.S. Cl. 364—424 **26 Claims**

24. An apparatus for controlling a hybrid vehicle having an output shaft and wheels coupled thereto, comprising:

an internal combustion engine having an engine shaft and a throttle,

throttle control means for controlling opening of said throttle as a function of a given first variable,

a first electric motor,

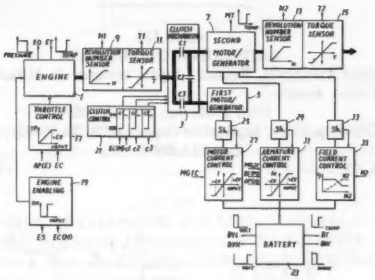
a second electric motor having a motor shaft coupled to said output shaft of said vehicle,

a battery for supplying electric power to said first and second motors,

first motor control means for controlling power flow from said battery to said first motor,

second motor control means for controlling power flow from said battery to said second motor,

speed adjustment operating means for adjusting the speed of said hybrid vehicle,



mode selecting means for selecting an operation mode of said hybrid vehicle from a group of operation modes which includes a motoring mode and an internal combustion engine mode,

first enabling means for interconnecting said speed adjustment operating means with at least said second motor control means to operate said second motor, in response to a selection of a motoring mode by said mode selecting means, and

second enabling means for connecting said speed adjustment operating means to said throttle control means to operate said throttle, in response to a selection of said internal combustion engine mode by said mode selecting means.

4,335,430

CONTROL AND COMPENSATION DEVICE IN AN ANTI-SKID CONTROL SYSTEM

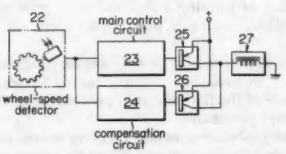
Taiji Ohmori, Kawagoe, and Makoto Sato, Kamifukuoka, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Shibuya, Japan

Filed 1980, Ser. No. 121,585

Claims priority, application Japan, 1979, 54-30723

Int. Cl.[3] B60T *8/00*

U.S. Cl. 364—426 **7 Claims**



1. A control and compensation device in an anti-skid control system including wheel speed detector means for detecting a peripheral speed of each of wheels to produce wheel speed signals related to the peripheral speeds of wheels; a main con-

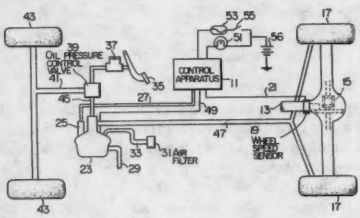
trol circuit for receiving, as input signals, wheel speed signals produced by said wheel speed detector means to produce an anti-skid control signal for controlling the braking force of wheels; an electromagnetic actuator for actuating the anti-skid control device so as to release the braking force of wheels when said electromagnetic actuator is brought into an energized state in accordance with the control signal produced by said main control circuit; an input element for receiving, as input signals, wheel speed signals produced by said wheel speed detector means; a control and compensation circuit connected to said input element for immediately generating an output signal only for a predetermined time when said wheel speed signals indicate a locked state of wheels continuously more than a predetermined time; and an output element for applying an output signal generated by said control and compensation circuit to said electromagnetic actuator for placing said actuator in an energized state.

4,335,431

SKID CONTROL METHOD

Junichi Takahashi, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed 1980, Ser. No. 128,863
Claims priority, application Japan, 1979, 54-30447
Int. Cl.³ B60T *8/02*
U.S. Cl. 364—426 **11 Claims**



1. A skid control method utilizing a wheel speed sensor; a control circuit including therein a microcomputer for calculating the wheel speed in accordance with pulse signals from said wheel speed sensor and calculating a slip rate of the wheel in accordance with the calculated wheel speed, for delivering a brake releasing signal when the calculated slip rate reaches a predetermined ON slip rate, and for delivering a brake releasing cancelling signal when the calculated slip rate decreases to a predetermined OFF slip rate; and a brake oil pressure control apparatus for controlling the pressure of the oil supplied to a wheel braking means in response to the signal from said control circuit in such a manner that the brake is released when the brake releasing signal is delivered and the brake is applied to the wheel when the brake releasing cancelling signal is delivered, wherein

said microcomputer is provided with free-running counter means for counting clock pulses and memory means for storing the contents of said free-running counter means; and

said wheel speed is calculated by completing:

a first step of forming a first interrupt processing signal in accordance with said pulse signal from said wheel speed sensor;

a second step of storing in said memory means the contents of said free-running counter means in response to the delivery of the first interrupt processing signal through an interrupt processing;

a third step of storing in said memory means the contents of said free-running counter means in response to a second interrupt processing signal formed in accordance with the pulse signal which was delivered an integral number of cycles of said pulse signal after said delivery of said first interrupt processing signal; and

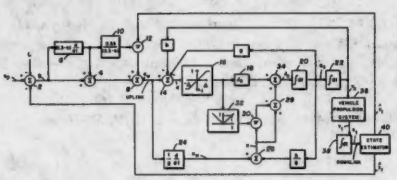
a fourth step of obtaining the wheel speed through the subtraction of one value from another stored in said memory means; and wherein said first to fourth steps are executed in each half cycle of an alternating waveform of a wheel speed.

4,335,432

OPTIMAL VEHICLE FOLLOWING CONTROL SYSTEM

Alan J. Pue, Columbia, Md., assignor to United States of America, Washington, D.C.

Filed 1980, Ser. No. 115,651
Int. Cl.³ B61L *23/00*
U.S. Cl. 364—436 **9 Claims**



1. In a vehicle-follower, short headway control system wherein the actual spacing S between a preceding vehicle and a trailing vehicle which travel on a guideway differs from an optimal spacing S_{min} based on kinematic constraints, the combination comprising:

apparatus for generating a signal ϵ_w which is a component part of a signal ϵ which is the difference between the actual spacing S and an approximate optimal spacing S'_{min}, said signal generating means including,

means for determining and conveying a signal corresponding to the actual spacing S, means for differentiating the actual spacing signal S over time and multiplying the derivative signal of the actual spacing signal S by a first gain factor (5.3-headway),

means for multiplying the differentiated and multiplied signal by a second gain factor equal to

$$\left(\frac{.33}{5.3 - \text{headway}}\right),$$

means for providing a signal indicative of the velocity of the trailing vehicle,

means for generating the product of the trailing vehicle velocity signal by the output from the second gain factor multiplying means, and

means for summing the generated product signal, the actual spacing signal, and the output from the differentiating and multiplying means to provide the ϵ_w signal, and

control means responsive to said ϵ_w signal for controlling said trailing vehicle to maintain said approximate optimal spacing S'_{min}.

4,335,433

METHOD FOR CORRECTING NAVIGATION ERRORS DUE TO WATER CURRENTS

Russell H. Bauer, Glendale, Md., and Madeleine Heidkamp, Buena Park, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed 1980, Ser. No. 160,049
Int. Cl.³ G06F *15/20, 15/50*
U.S. Cl. 364—443 **5 Claims**

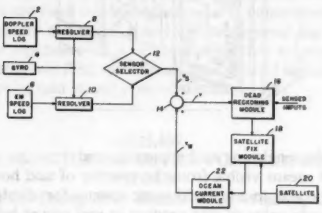
1. In a system having a satellite fix position determining means and a dead-reckoning means for continuously estimating position between satellite fixes, a method for correcting ocean

vessel navigation errors due to essentially constant water currents, comprising the steps of:

periodically locking on to a satellite and determining present vessel position in latitude (ϕ_{F2}) and longitude (λ_{F2}) using satellite fixes at lock-on,

comparing satellite fix latitude (ϕ_{F2}) and longitude (λ_{F2}) with dead-reckoned latitude (ϕ_{DR}) and longitude (λ_{DR}), respectively, at the time of fix to yield update corrections in latitude (ϕ_u) and in longitude (λ_u),

defining differential functions (A_{ij}) which relate respective changes in current satellite fix position in latitude (ϕ_{F2}) and longitude (λ_{F2}) to respective changes in velocity in the north (v_N) and east (v_E) directions,



partially predicting satellite fix errors in latitude (ϕ_E) and longitude (λ_E) at current and previous satellite updates as a function of the velocity changes (v_N and v_E) and the differential functions (A_{ij}),

determining the values for the differential functions A_{ij}, comprising the steps of introducing known velocity errors in the north and east directions and measuring variations in satellite fix latitude (ϕ_{F2}) and longitude (λ_{F2}) positions resulting from the introduced known velocity errors,

measuring the time (T) between satellite updates, and

determining the velocity north and velocity east errors (v_N and v_E) as a function of: time between satellite updates, update corrections (ϕ_u and λ_u), and differential functions (A_{ij}).

4,335,434

ELECTRONICALLY CONTROLLED FRANKING MACHINE

Kurt Baumann; Peter Kusche, both of Berlin, and Reinhard Redecker, Bielefeld, all of Fed. Rep. of Germany, assignors to Postalia GmbH, Berlin, Fed. Rep. of Germany

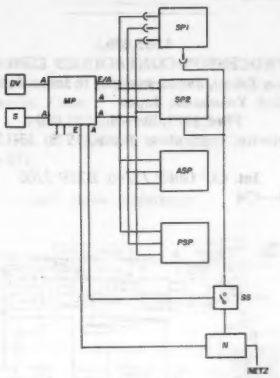
Filed 1980, Ser. No. 144,337

Claims priority, application Fed. Rep. of Germany, 1979, 2916840

Int. Cl.³ G06F *15/20*

U.S. Cl. 364—464 **6 Claims**

1. Electronic control for franking machines such as postage meters and stamping machines having a printing device, a postage value printing selection device, a total postal charge storage register and a settable subtracting value counter, comprising a microprocessor, a volatile main memory for storing data, and non-volatile semiconductor memories for storing data and the number of writing cycles performed, said memories being connected to said microprocessor, a line voltage power supply, supply capacitors disposed in said power supply, switch means controlled by said microprocessor for connecting said non-volatile memories to said supply capacitors of said power supply exclusively in the event of an interruption of the line voltage to cause said non-volatile memories to take over data stored in said main memory, and register means connected to one of said non-volatile memories for preventing



the exceeding of a predetermined number of writing cycles of said one non-volatile memory after the power supply resumes.

4,335,435

METHOD OF CHANGING ROLLING SCHEDULE DURING ROLLING IN TANDEM ROLLING MILL

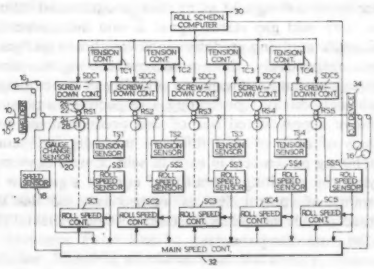
Keiichi Miura, Kobe, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed 1979, Ser. No. 90,311

Claims priority, application Japan, 1978, 53-135395

Int. Cl.³ G06F *15/46*; B21B *37/00*

U.S. Cl. 364—469 **3 Claims**



1. A method of changing a rolling schedule on the passage of a work strip having a gauge change point through a tandem rolling mill including a plurality of roll stands without stopping the rolling mill comprising changing roll speeds on all of the plurality of roll stands when the gauge change point of the work strip arrives at one of the plurality of roll stands, wherein a roll speed pattern is arranged for maintaining the steady-state mass flow constant and for minimizing a sum of changes in roll speed on the basis of a function expressing a total amount of the changes in roll speeds on the plurality of roll stands; and wherein the roll speed pattern is arranged for maintaining the steady-state mass flow constant so that, each time the gauge change point arrives at one of the plurality of roll stands, the roll speeds on all of the plurality of roll stands are uniformly changed so as to minimize a total amount of the changes in roll speeds and then, the roll speeds on the roll stand at which the gauge change point arrives and the roll stands disposed upstream of the roll stand at which the gauge change point arrives are changed to speed ratios according to a new rolling schedule while the roll speed on the roll stand at which the

gauge change point arrives and the roll stands disposed downstream thereof are held at speed ratios according to the just preceding rolling schedule.

4,335,436

MICROPROCESSOR-CONTROLLED EDM SYSTEM

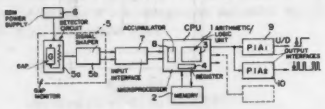
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed 1979, Ser. No. 101,080

Claims priority, application Japan, 1978, 53-152500; 1979, 53-154522

Int. Cl.³ G06F *15/46;* **B23P** *1/08*

U.S. Cl. 364—474 **8 Claims**



1. A method of controlling a plurality of different mutually independent machining parameters across a single machining gap in the operation of an EDM machine having a plurality of control devices for variable regulating the different mutually independent machining parameters, respectively, the method comprising the steps of:

microprogramming a set of information each representing a predetermined set of values for each of said different mutually independent machining parameters in a memory of a microprocessing unit;

deriving from said machining gap in said EDM machine a gap status signal representing a measure of characteristic thereof;

applying said gap status signal through a single channel to an input interface and in turn to said microprocessing unit;

cyclically processing said set of microprogrammed information with said gap status signal in said microprocessing unit while applying predetermined weights to said parameters, respectively, during microprocessing to provide through an output interface a plurality of control signals each individually representing a respective command to retrieve a preselected one of said predetermined set of values of each of said different mutually independent machining parameters in each of said control devices;

applying the resulting plurality of control signals to said plurality of control devices, respectively, so that each control device individually establishes said retrieved value of the particular parameter.

4,335,437

CIRCUIT INTERRUPTER WITH ENERGY MANAGEMENT FUNCTIONS

John T. Wilson; John A. Wafer, both of Beaver, and Joseph C. Engel, Monroeville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 140,554

Int. Cl.³ H02H *3/08;* **G06F** *15/56*

U.S. Cl. 364—483 **10 Claims**

1. Self-contained circuit interrupter apparatus, comprising:

interrupter means for conducting current flow in an associated circuit and for operating to interrupt the current flow therethrough on command;

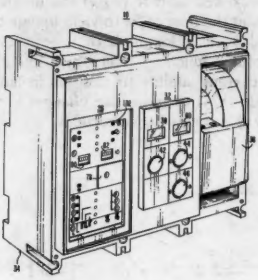
sensing means for sensing current flow through said interrupter means and for supplying operating power to said apparatus;

trip unit means connected to said interrupter means and said sensing means for operating said interrupter means when current flow therethrough exceeds predetermined limits;

voltage means for obtaining the value of line voltage on the associated circuit;

power factor means for obtaining the value of power factor on the associated circuit;

arithmetic means connected to said current sensing means, said voltage means, and said power factor means for calculating real power flow through the associated circuit;



a housing enclosing said apparatus; and

display means visible from the exterior of said housing and connected to said arithmetic means for displaying the numeric value of said product as real power being delivered by the associated circuit.

4,335,438

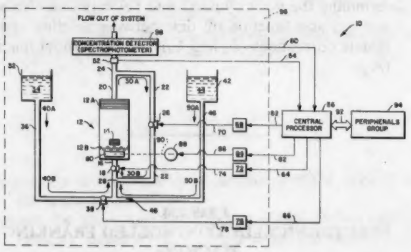
METHOD AND APPARATUS FOR AUTOMATIC DISSOLUTION TESTING OF PRODUCTS

Victor F. Smolen, 227 Timbercrest Rd., West Lafayette, Ind. 47906

Filed 1980, Ser. No. 141,093

Int. Cl.³ G06F *15/46;* **G01N** *31/00*

U.S. Cl. 364—497 **15 Claims**



1. Apparatus for the automated dissolution testing of products whose solubility and dissolution rate properties affect product performance comprising:

(a) a dissolution cell having an input line, an output line, and a filtering chamber therebetween;

(b) at least two reservoirs connected to said input line through a like number of media supply lines for providing dissolution media from said reservoirs to said filtering chamber;

(c) first flow control means responsive to a first control signal and positioned in said input line for controlling the flow of dissolution media through said filtering chamber, and second flow control means responsive to a second control signal and positioned in at least one of said media supply lines for controlling the flow of dissolution media therethrough;

(d) recirculating means including third flow control means responsive to a third control signal and connected to said input and output lines for controlling recirculatory flow therebetween;

(e) system output means connected to said output line and

containing means for measuring output parameters therein including a concentration parameter of particular constituents flowing therethrough, and for providing a time series of system output signals corresponding to said measured output parameters;

(f) memory means for providing a time series of stored control signals to said apparatus; and

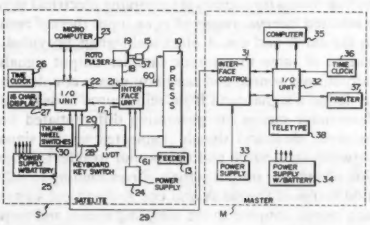
(g) a multimode electronic control system having a separate feedback control channel for providing each of said first, second and third control signals, said control system connected to said first, second and third flow control means, and to said system output means, and using negative feedback circuitry in a first mode to form a difference error signal between said stored control signals and said system output signals for automatically determining said first, second and third control signals so as to continuously tend to minimize the value of said difference error signal, and further operative in a second mode for automatically providing said first, second and third control signals in the absence of said stored control signals.

4,335,439

WEIGHT MONITORING DEVICE FOR STRIP METAL STOCK

Andrew R. St. Denis, 3541 Rankin Ave., Windsor, Ontario, Canada

Filed 1980, Ser. No. 143,729
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—562 **10 Claims**



5. A device for automatically monitoring the thickness, length and weight of strip metal stock being fed from a roll feeder to a metal processing machine comprising:

(a) a pair of rollers mounted on the feeder above and below the path of travel of the strip stock, said rollers being mounted on support arms which are pivotally mounted on the feeder to permit movement of the rollers in a substantially vertical direction and spring means mounted between said support arms to bias the rollers toward each other,

(b) a rotary transducer operatively connected to an end of one of said rollers, said transducer being adapted to generate electrical signals proportional to the actual advancement of the strip stock,

(c) a linear vertical differential transformer probe mounted between said support arms and adapted to generate electrical signals proportional to the distance between the rollers and thus the thickness of the strip stock passing between the rollers, and

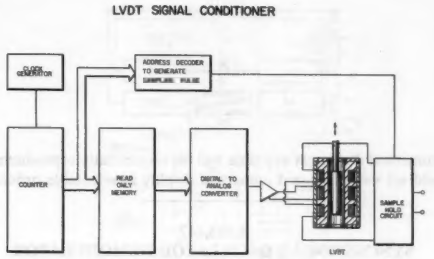
(d) a data processor adapted to count electric pulses from the rotary transducer and provide a reading of the actual length of strip stock fed by the feeder, to convert electric pulses received from the linear vertical differential transformer into readings of the actual thickness of the strip stock fed by the feeder, said processor being further adapted to store data based on the predetermined width and density of the strip stock and to calculate the actual weight of stock fed as computed from the width and density data stored and the actual length and thickness of the strip stock obtained from the rotary transducer and liner vertical differential transformer.

4,335,440

SIGNAL ENHANCEMENT CIRCUIT

Vance B. Gold, Lombard, Ill., assignor to American Can Company, Greenwich, Conn.

Filed 1979, Ser. No. 105,533
Int. Cl.³ G06G *7/12*; G06J *1/00*
U.S. Cl. 364—571 **4 Claims**



1. A method for enhancing and adjusting a plurality of variable signals from output devices of the same type each having different characteristics to overcome the pecularities of each and to relate and tune each to its maximum linearity over a preset range including the steps of:

finding the most substantially linear portion of each of series of signals emanating from each device over said range by plotting the characteristics of each over said range,

calibrating each said device against a known straight line function to approximate the variance of the output characteristic for each of said series of signals relative to said function, and

correcting said signals for producing an output adjusted and enhanced by performing translation and rotation of said straight line function to account for the peculiar characteristic of each said device.

4,335,441

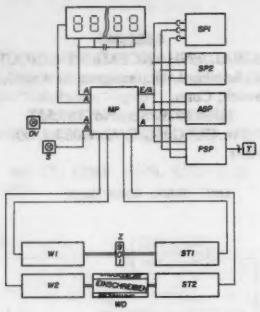
ELECTRONICALLY CONTROLLED INDICATOR AND TESTING DEVICE FOR FRANKING MACHINES

Kurt Baumann; Peter Kusche, both of Berlin, and Reinhard Redecker, Bielefeld, all of Fed. Rep. of Germany, assignors to Postalia GmbH, Offenbach am Main, Fed. Rep. of Germany

Filed 1980, Ser. No. 144,336
Claims priority, application Fed. Rep. of Germany, 1979, 2916811
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—580 **4 Claims**

1. Electronically controlled indicator and testing device for the denominational printing of franking machines, comprising a numerical display, a microprocessor for setting values or assigned charecteristics in said numerical display, means for sequentially visualizing all numerals in said numerical display after the franking machine is turned on, a program memory, a main memory, a data memory, and an exchangeable memory each connected to said microprocessor, a printing mechanism, a selectable option printing drum, electro-mechanical means cooperating with said microprocessor for setting denominations in said printing mechanism and option printing drum, electronic setting test means independent of said electro-mechanical means for comparing set values in said printing mechanism and option printing drum with said set values or assigned characteristics in said numerical display and for re-

leasing an option print only if said set values agree, and key means for triggering an additional run of all numerals of said



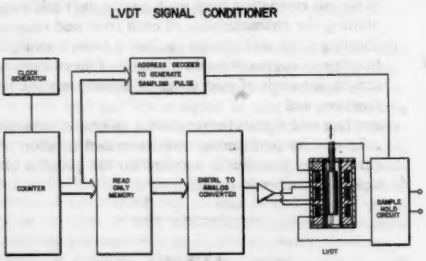
numerical display at any time and for sequentially reproducing said set values on said numerical display in selectable order.

4,335,442

SYNCHRONOUS OSCILLATOR DEMODULATOR SYSTEM

Soren B. Backe, Dundee, Ill., assignor to American Can Company, Greenwich, Conn.

Filed 1979, Ser. No. 105,532
Int. Cl.³ G06J *1/00*
U.S. Cl. 364—608 **10 Claims**



1. An electronic circuit apparatus for generating a waveform to drive a transformer primary circuit and to signal the time at which a prearranged point on said waveform occurs for measuring the output amplitude of the transformer secondary circuit at that point comprising:

a means for dividing up time into uniform equal components of a frequency adequate to provide a plurality of segments within a prescribed time cycle,

a means connected to said dividing means to receive said segments for accumulating a predefined number of said segments which make up one said waveform and for assigning an address to each side segment,

a first electronic operating device connected to receive said addressed segments being a read only memory set to associate an output being data defining that amplitude of a waveform with each set of said addressed segments, and

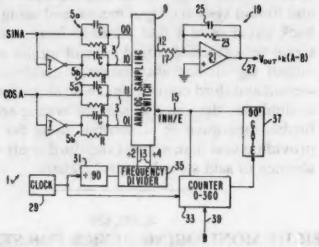
a second electronic operating device also connected to receive said addressed segments from said receiving means for identifying preselected addressed segments for signalling a point in time on each waveform cycle for use to initiate the monitoring of a respective output of said transformer secondary circuit, said point signal from said second electronic operating device being transmitted to a sample and hold circuit connected to said transformer secondary circuit for measuring the transformer secondary output held by said circuit at that respective point in time.

4,335,443

ELECTRONIC ANGLE RESOLVER

Baron C. Dickey, 982 Yorktown Dr., Sunnyvale, Calif. 94087

Filed 1979, Ser. No. 106,044
Int. Cl.³ G06G *7/22*; G06J *1/00*
U.S. Cl. 364—815 **16 Claims**



12. An angle resolver for providing an approximate electrical representation of the difference between a pair of angles A and B, the angle A represented by electrical signals provided by a source and which correspond to the sin A and cos A, comprising:

sampling means for selectively sampling electrical signals for a selected interval received at an input thereof responsive to the sin A and cos A electrical signals provided by the source of same to produce sampler output signals at an output; said source and sampling means coupled together to define a signal path from said source to said output;

differentiator means for generating differentiated forms of received electrical signals connected to the signal path between the source and the output to effect the production of sampler output signals corresponding to differentiated forms of the sin A and cos A electrical signals; and

timing means coupled to the sampling means and responsive to the value of the angle B to cause said sampling means to sample said sin A and cos A electrical signals for said selected interval at a time determined by the value of said angle B to effect the production of sampler signals, with the effects of differentiation, corresponding to the angular difference between angles A and B.

4,335,444

MULTIPLE PULSE-WIDTH MULTIPLIER

Felix Blaschke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 148,141
Claims priority, application Fed. Rep. of Germany, 1979, 2919786
Int. Cl.³ G06G *7/22*
U.S. Cl. 364—815 **9 Claims**

1. Apparatus for calculating a sum of products, each product having two factors, comprising:

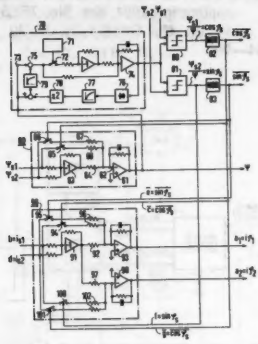
a junction point;

a smoothing stage having an input coupled to the junction point and having an output at which the sum of the products is taken off;

an inverter having an output coupled to the junction point and having as inputs a plurality of input voltages, each input voltage corresponding to a first factor of each of the products;

a plurality of switches, equal in number to the number of products being summed, each switch having an output and each switch having one of the plurality of input voltages as an input;

means for generating switching pulses proportional to voltages corresponding to the respective second factors of the products, the pulses being coupled as control inputs to the switches; and



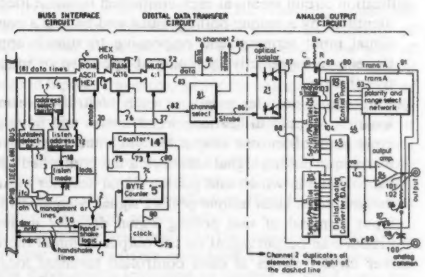
a proportional stage coupling the output of each switch and of the inverter to the junction point.

4,335,445

SYSTEM FOR INTERFACING COMPUTERS WITH PROGRAMMABLE POWER SUPPLIES

Sarkis Nercessian, Flushing, N.Y., assignor to Kepco, Inc., Flushing, N.Y.

Filed 1979, Ser. No. 15,453
Int. Cl.³ G06F *3/00*
U.S. Cl. 364—900 **3 Claims**



1. In a digital information interfacing system for utilizing data bytes from a plurality of data lines to provide analog voltage control of voltage/current programmable power supplies, the combination of;

means coupled to said data lines for temporary storage of said data bytes received from said data lines to provide stored data bytes;

means coupled to said data lines and said temporary storage means for controlling a predetermined number of bytes being accepted by said temporary storage means;

means coupled to said temporary storage means for serializing said stored data bytes;

means for passing said serialized data bytes through optical isolation means to provide isolated data;

means including a series to parallel shift register for converting said serial isolated data to parallel form;

means including a digital to analog converter for converting said parallel data to analog form;

means responsive to said analog form data for generating an analog voltage;

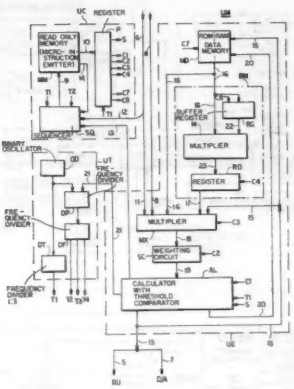
and means for using said analog voltage to control said programmable power supplies.

4,335,446

TERMINAL EQUIPMENT FOR DATA-TRANSMISSION NETWORK INCLUDING DIGITALLY OPERATING MODEM

Francesco Gandini, Turin; Giuseppe Giandonato, Rivalba-Turin; Enrico Impallomeni, and Roberto Montagna, both of Turin, all of Italy, assignors to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

Continuation of Ser. No. 902,164, May 2, 1978, abandoned. This application 1979, Ser. No. 100,908
Claims priority, application Italy, 1977, 67967 A/77
Int. Cl.³ H04B *12/00*; G06F *7/48*
U.S. Cl. 364—900 **7 Claims**



1. Terminal equipment communicating with a data network by way of a transmission link designed for a carrier wave modulated by a succession of binary signals forming multibit envelopes each consisting of a predetermined number of said binary signals and having a characteristic bit in a predetermined time position, comprising:

receiving means for deriving a succession of analog samples at predetermined intervals from an incoming modulated carrier wave, said binary signals recurring during time periods of predetermined length each encompassing a multiplicity of sampling intervals;

analog/digital conversion means connected to said receiving means for translating said analog samples into digitized form;

memory means for storing precalculated digital values of trigonometric functions of amplitude samples of a predetermined carrier oscillation;

arithmetic means connected to said analog/digital conversion means and to said memory means for demodulating the incoming carrier wave by performing mathematical operations on the digitized samples, including multiplication thereof by the corresponding stored digital values to produce a series of signal samples during each of said time periods, and reconstructing the original binary signals from the results of said operations by selecting during each of said time periods the signal sample of highest absolute value in the series, said highest absolute value being determined by said arithmetic means from a calculation of the derivatives of said signal samples, said arithmetic means including a threshold comparator emitting an error signal upon detecting a magnitude of the derivative of said signal sample of highest absolute value exceeding a predetermined level;

a generator of timing pulses establishing said sampling intervals, said generating being responsive to said error signal for modifying the cadence of said timing pulses to resynchronize same with the timing of said data network; and

a microinstruction emitter stepped by said timing pulses and programmed to control said arithmetic means with detec-

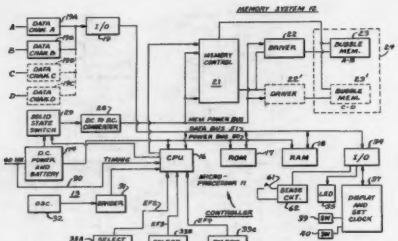
tion of said characteristic bit among the reconstructed binary signals to reconstitute said envelopes.

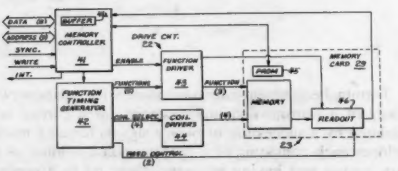
4,335,447

POWER OUTAGE RECOVERY METHOD AND APPARATUS FOR DEMAND RECORDER WITH SOLID STATE MEMORY

John W. Jerrim, Lilburn, Ga., assignor to Sangamo Weston, Inc., Atlanta, Ga.

Filed 1980, Ser. No. 118,830
Int. Cl.[3] G11C *11/00, 7/00*
U.S. Cl. 364—900 **9 Claims**





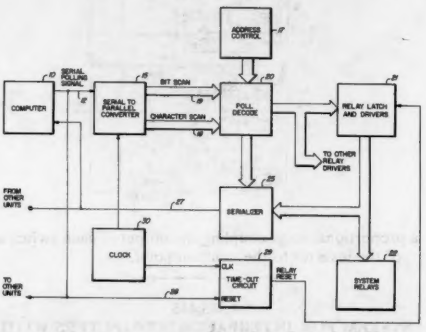
1. In a demand recorder including controller circuit means receiving data pulses representative of measured events and including random memory means having primary and secondary storage locations, said controller circuit means generating data words representative of received event data for predetermined demand intervals and storing the same in said primary storage locations of said random memory means for a collection period comprising a predetermined number of said demand intervals; solid state memory means, said controller circuit means transferring said event data from said random memory means at the end of a collection period of more permanent storage in said solid state memory means, said solid state memory means being removably associated with said controller circuit means to enable remote processing of event data stored therein, said controller circuit means being responsive to a power outage to inhibit data transfers from said random memory means to said solid state memory means, the improvement characterized in that said controller circuit means responds to a power outage to transfer the data from said primary storage locations of said random memory means to said secondary storage locations of said random memory means at the end of the first collection period during which a power outage has occurred, and when the power outage spans into the next collection period, said controller circuit means stores incoming event data in said primary storage locations of said random memory means in a compacted format comprising an index data word representative of the number of demand intervals of said next collection period for which the power outage lasts and event data representative of measured events which occurred during the demand interval of said next collection period during which restoration of power occurs.

4,335,448

ELECTRONIC CONTROL SYSTEM

Bradford O. VanNess, Paradise Valley, Ariz., assignor to Engineered Systems, Inc., Tempe, Ariz.

Continuation of Ser. No. 13,007, Feb. 21, 1979, abandoned. This application 1981, Ser. No. 251,310
Int. Cl.[3] G06F *3/04, 15/20*
U.S. Cl. 364—900 **10 Claims**



1. An electronic control system having a central source of control and polling signals interconnected with a plurality of controlled terminal locations, the controlled terminal locations including in combination:

utilization circuit means at each controlled terminal location identified by a unique polling signal and having a control signal input terminal and responsive to signals applied thereon to be selectively rendered operative or inoperative thereby;

polling signal decoder means at each controlled terminal location for said utilization circuit means and having an input and at least one output terminal, and responsive to the unique polling signal identifying the controlled terminal location in which said polling signal decoder means is located when such unique polling signal is applied to the input terminal of said polling signal decoder means to produce an output signal on the output terminal thereof;

driver circuit means at each controlled terminal location connected between the output terminal of said polling signal decoder means and the input terminal of said utilization circuit means for such terminal location to selectively render said utilization circuit means operative or inoperative in response to the signals on the output terminal of said polling signal decoder means for such terminal location;

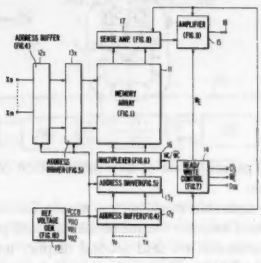
polling signal supply means coupled to the input terminals of all of said polling signal decoder means for applying polling signals thereto from the central source; and

separate control circuit means at each controlled terminal location coupled to receive signals from said polling signal supply means and coupled to one of said driver circuit means and said utilization circuit means at such controlled terminal location for rendering said utilization circuit means at only such controlled terminal location inoperative in response to the absence of the receipt of polling signals by such control circuit means for a predetermined time interval from said polling signal supply means; each of said control circuit means at each of said controlled terminal locations operating independently of the control circuit means at other controlled terminal locations.

4,335,449
SEMICONDUCTOR MEMORY DEVICE

Jyoji Nokubo, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 133,999
Claims priority, application Japan, 1979, 54/3518
Int. Cl.[3] G11C *11/40*
U.S. Cl. 365—177 10 Claims



1. A memory device comprising:

a plurality of memory cells arrayed in rows and columns, each of said memory cells having a pair of cross-coupled insulated-gate field effect transistors,

at least one address inverter circuit for generating true and complement signals of an address signal, said address inverter circuit including first and second bipolar transistors having commonly connected emitters, a constant current source coupled to said commonly connected emitters, a first field effect transistor connected between a predetermined voltage and the collector of said first bipolar transistor, a second field effect transistor connected between said predetermined voltage and the collector of said second transistor, means for connecting the gate of said first field effect transistor to the collector of said second bipolar transistor, means for connecting the gate of said second field effect transistor to the collector of said first bipolar transistor, means for supplying the base of said first bipolar transistor with said address signal, and means for supplying the base of said second transistor with a reference voltage, said true and complement signals being derived from the collectors of said second and first bipolar transistors respectively,

row drive means responsive to the output of said address inverter for selectively energizing one of said rows, said row drive means including an emitter coupled logic circuit, and

a read circuit for sensing data stored in selected ones of said memory cells, and read circuit including third and fourth bipolar transistors having commonly connected emitters, a constant current source coupled to said commonly connected emitters of said third and fourth bipolar transistors, and means for supplying the bases of said third and fourth bipolar transistors with a differential signal derived from selected memory cell.

4,335,450
NON-DESTRUCTIVE READ OUT FIELD EFFECT TRANSISTOR MEMORY CELL SYSTEM

Donald R. Thomas, Westford, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

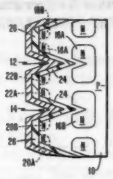
Filed 1980, Ser. No. 116,736
Int. Cl.[3] G11C *11/40*
U.S. Cl. 365—182 19 Claims

1. A non-destructive read out memory cell system comprising:

a semiconductor substrate of a given type conductivity,

a field effect transistor having source and drain regions of a conductivity opposite to said given type conductivity defining a channel region having first and second threshold sections disposed within said semiconductor substrate and a gate electrode isolated from said channel region,

a storage node region having said opposite type conductivity disposed within said substrate adjacent to the first threshold section of said channel regions,



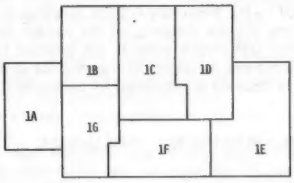
means coupled to said gate electrode and to said source and drain regions for selectively charging and discharging said storage node region, and

means for indicating the flow of current passing through said channel region.

4,335,451
SIGNALLING METHOD AND APPARATUS FOR ENHANCING ECHO IMAGES

Mervyn L. Feuer, Grass Valley, Calif., assignor to Leonard Frazier, Suisun, Calif.

Continuation of Ser. No. 942,965, Sep. 18, 1978, abandoned. This application 1980, Ser. No. 133,525
Int. Cl.[3] G01S *15/06*
U.S. Cl. 367—115 15 Claims



1. The method of enhancing the output indication of a reflective object in an echo-responsive device, the method comprising the steps of:

initiating a transmit pulse directed toward a reflective object;

receiving an echo of a transmit pulse which is reflected from a reflective object;

expanding in time duration the echo received from the reflective object;

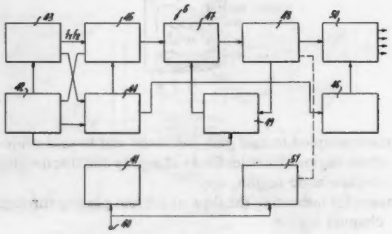
producing a plurality of samples of the expanded echo at successive intervals for storage in successively addressed memory locations; and

simultaneously initiating a period during which an output indication is produced and initiating the successive addressing of the samples stored in the plurality of memory locations for producing output indications thereof in succession during said period.

4,335,452
ELECTRO-ACOUSTIC DEVICE FOR THE UNDERWATER SIGNALLING AND IDENTIFICATION OF A VESSEL

Philippe Eberlin, Geneva, and Mario Rossi, Lausanne, both of Switzerland, assignors to Blanchut & Bertrand S.A., Switzerland

Filed 1980, Ser. No. 178,379
Claims priority, application Switzerland, 1979, 7424/79
Int. Cl.³ H04B *11/00*
U.S. Cl. 367—134 **10 Claims**



1. An electro-acoustic device for the underwater signalling and identification of a vessel, comprising:

an emitter having at least one electro-acoustic transducer mounted at subaqueous parts of the hull of the vessel, and an electronic circuit for controlling said transducer, the emitter being designed to emit, at audio-frequency, an identification signal specific to the vessel, said signal being constituted by a series of letters or figures emitted in code and preceded by a start-of-emission signal, the emitter and its control circuit being so rated that the signal is emitted at at least one frequency selected for each vessel and being within the range 4 to 6 kHz and simultaneously in the proper sound spectrum of the vessel, but above the discrete frequencies of the vertical lines of said spectrum and different from their harmonics and at a strength such that the level of acoustic intensity LI_{fi} (dB), by unit of distance, of the identification signal of mean frequency f_i (Hz), is greater than or equal to the level of acoustic intensity LI_{fb}, by unit of distance, of the sound band, centered on the frequency f_b (Hz), resulting in the detection, from a great distance, of the carrier vessel by its particular underwater noise in the ambient background noise of the sea, increased by a parameter Δ the value of which in decibels is calculated by means of the relationship:

$$\Delta = 40\alpha_s + 10 \log (B_{ci}/B_{cb}) - 15 \log (f_i/f_b) + 6,$$

wherein:

α_s = the coefficient of absorption of sound in the sea at the frequency f_s,

B_{ci} and B_{cb} (Hz) = the critical screening bands at the frequencies f_i and f_b respectively.

4,335,453
ELECTRONIC WATCH

Jean-Claude Fatton, Le Landeron, Switzerland, assignor to Ebauches Electroniques S.A., Marin, Switzerland

Filed 1980, Ser. No. 151,780
Claims priority, application Switzerland, 1979, 5133/79
Int. Cl.³ G04B *19/24, 19/30*; G04C *19/00*
U.S. Cl. 368—30 **4 Claims**

1. An electronic watch comprising:

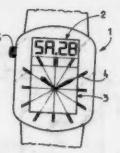
(a) means providing present time-of-day information and also other information;

(b) first passive electro-optic display means for displaying in analog form said present time-of-day information;

(c) second passive electro-optic display means for continuously displaying in digital form one of said present time-of-day information and said other information;

(d) lamp means for illuminating only said second display means;

(e) selector means for applying to said second display means



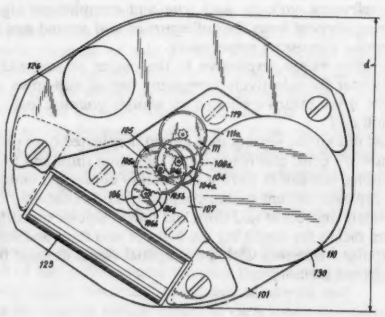
either said present time-of-day information or said other information;

(f) manually operable push-button means for concurrently operating said selector means to display said present time-of-day information on said second display means and to activate said lamp means.

4,335,454
GEAR TRAIN MECHANISM FOR A TIMEPIECE

Haruyoshi Yamada, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed 1979, Ser. No. 93,097
Claims priority, application Japan, 1978, 53-141891
Int. Cl.³ G04B *19/02*
U.S. Cl. 368—220 **9 Claims**



1. A gear train mechanism for a timepiece including means for timekeeping and a rotating second hand for display, comprising:

a fourth wheel and pinion assembly having a tenon for support of said fourth wheel and pinion assembly in said timepiece, said second hand being attached to said fourth wheel and pinion assembly for rotation therewith;

an intermediate wheel and pinion assembly for transmitting motion to said fourth wheel and pinion assembly, the outer radius of said intermediate wheel overlapping said tenon of said fourth wheel and pinion assembly.

4,335,455

METHOD AND APPARATUS FOR FOUR-WIRE TYPE TRANSMISSION OF DIGITAL MESSAGE SIGNALS

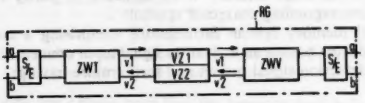
Peter Hirschmann, Puchheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed 1980, Ser. No. 155,389

Claims priority, application Fed. Rep. of Germany, 1979, 2927228

Int. Cl.³ H04M 3/00

U.S. Cl. 370—29 14 Claims



1. A method for the two-wire transmission of digital message signals on a two-wire transmission line between a superordinate system, such as a digital exchange, and a subordinate system, such as a digital subscriber station, in the form of message signal blocks which comprise at least one message signal word and signalling bits in both transmission directions, as well as sychronization bits in the transmission direction from the superordinate system to the subordinate system, and which are repeatedly and alternately transmitted between said superordinate system and said subordinate system with a prescribed transmission period (P) initiated by the transmission of a message signal block by said superordinate system, said subordinate system transmitting a subordinate message signal block (NBT) in response to the receipt of each superordinate message signal block (NBV) transmitted by said superordinate system, possibly after expiration of a prescribed delay, said method comprising the steps of:

(a) passing said message signal blocks through a regenerator located in said two-wire transmission line at such a point that each subordinate message signal block (NBT) which is sent within a first transmission period (P1) arrives at said regenerator no later than a time period τ following the beginning of the next subsequent transmission period (P2), where said time period τ is the transmission time period between said superordinate system and said regenerator; and

(b) delaying the subordinate message signal blocks (NBT) in said regenerator by a delay time period which is chosen to be sufficiently long that the superordinate message signal blocks (NBV) transmitted by the superordinate system pass said point in the transmission line during the delay time period, but not so long that the delayed subordinate message signal blocks are received at said superordinate system during the time periods of transmission of said superordinate message signal blocks.

4,335,456

SWITCH-THROUGH UNIT FOR BIT GROUPS WITHIN A PROGRAM CONTROLLED, ELECTRONIC DATA SWITCHING SYSTEM

Rainer Gaiser, Munich; Rolf Hagen, Unterhaching, and Bernhard Schaffer, Lochham, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 887,964, Mar. 20, 1978, abandoned, which is a continuation of Ser. No. 660,939, Feb. 24, 1976, abandoned. This application 1980, Ser. No. 116,235

Claims priority, application Fed. Rep. of Germany, 1975, 2508323

Int. Cl.³ H04J 3/00

U.S. Cl. 370—58 2 Claims

1. A method for program controlled switching of data transmitted in bit groups and interleaved within a time division multiplex (TDM) frame, wherein the bit group position within the TDM frame corresponds to a channel assignment, comprising the steps of:

communicating a request signal to a data switching system upon reception of bit groups to be switched through,

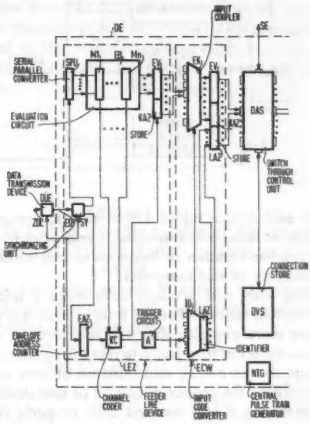
comparing received bit groups with predetermined bit configurations,

producing a comparison result signal having a first value if identical bit configurations are received in successive cycles in a channel, the comparison result signal of the first value being communicated to the data switching system,

forming a feeder channel address and a feeder line address for each bit group from that bit group's position within the TDM frame,

storing the feeder channel address and the feeder line address in a register means,

selecting a feeder cell in a connection store on the basis of the feeder channel and line addresses, the selected feeder cell being permanently assigned to each feeder.



entering the feeder channel and line addresses for each bit group in its respective feeder cell in response to signalling characteristics contained in the bit groups,

reading out from said feeder cell the trunk line and channel addresses forming the trunk address of a desired trunk for a switching through connection, said feeder cell being read with each succeeding bit group,

selecting a trunk corresponding to the read-out trunk line address,

coupling each bit group and corresponding trunk channel address to a trunk line identified by the corresponding trunk line address,

writing the bit groups into a switch-through store prior to transmission so a TDM frame can be seized at a point determined by the corresponding trunk channel address,

reading the bit group from said switch-through store as frequently as it is received and,

transmitting the contents of said switch-through store for all channels when said writing step is completed.

4,335,457

METHOD FOR SEMICONDUCTOR MEMORY TESTING

James M. Early, Palo Alto, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed 1980, Ser. No. 176,353

Int. Cl.³ G01R 31/28; G11C 29/00

U.S. Cl. 371—28 7 Claims

1. A method for testing a semiconductor memory device, containing a plurality of memory cells, each cell being capable of storing one bit, said method including the use of a computer

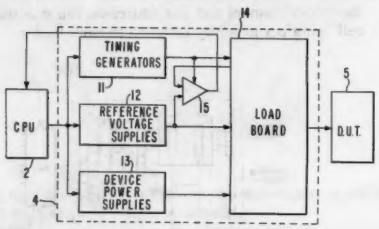
and a set of instructions to said computer, said method comprising the steps of:

testing the semiconductor memory device with a first set of tests utilizing simple test patterns;

determining if said device functions properly during said first set of tests;

classifying said device as a failed device if said device does not function properly during said first set of tests;

further testing said device if said device functions properly during said first set of tests, with a second set of tests which comprises testing said device with one or more simple test patterns while one or more device operating conditions are altered beyond the limits specified for proper functioning of the device until one or more cells in said device fail to function properly, said one or more cells



in said device which fail to function properly being the one or more weakest cells of said device;

storing the location or locations of said weakest cells in the memory of said computer;

testing only said weakest cells using a third set of tests, wherein said third set of tests utilizes test patterns which are more complex than the test patterns utilized in said second set of tests and wherein the operating conditions of said device during said third set of tests are within those specified for proper operation of said device;

determining if said weakest cells properly function during said third set of tests; and

classifying said device if its functions properly during said first set of tests, as an acceptable or failed device based on the results of said third set of tests.

4,335,458

MEMORY INCORPORATING ERROR DETECTION AND CORRECTION

Thijs Krol, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed 1979, Ser. No. 34,096

Claims priority, application Netherlands, 1978, 7804674

Int. Cl.³ G06F *11/10*

U.S. Cl. 371—38 **11 Claims**

1. A word-organized memory system having a first memory bank, said memory bank having a first plurality of memory locations each accommodating a memory word of a first uniform length; each memory location having within said first uniform length a second plurality of user word locations each accommodating a user word of a second uniform length; said memory system furthermore comprising:

addressing means having an address input for receiving a user address specifying a memory location and within a memory location a user word location;

a data line for transporting an addressed user word;

each user word location having a uniform number of data bit locations and at least one location for a parity bit for detecting a single-bit-error in the associated user word;

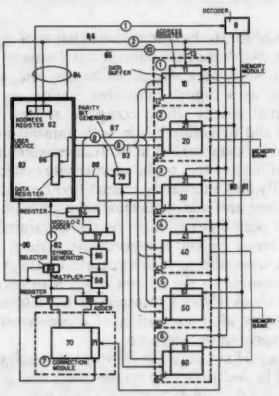
wherein the data bits in corresponding bit positions of the user words within a memory location form a plural-bit user symbol and the parity bits in corresponding bit positions of the user words within a memory location form a plural-bit parity symbol;

each memory location furthermore accommodating a plurality of correction bits equal to said second plurality to form a plural bit corrector symbol;

all said symbols forming elements of the same Galois field;

said memory having a detector device having an input connected to the data line for receiving a user word with an associated parity bit for detecting a single-bit error therein and thereupon generating a detection signal on a detection signal output connected to an input of said addressing means for then addressing the further user word locations of the same memory word inclusive of parity bits and corresponding corrector symbol;

said memory system furthermore comprising a corrector device having an activation signal input connected to said detection signal output and furthermore having:



multiplying means having an input connected to the data line for receiving the read and incorrect memory word and multiplying this memory word by a parity matrix that consists of elements of the same Galois field to generate an error symbol and a product symbol of error symbol and locator symbol;

extractor means having an input connected to an output of said multiplying means for receiving said error symbol and said product symbol for therefrom extracting an error locator quantity;

correcting means having an input connected to the data line, to an output of the multiplying means, and to an output of the extracting means for correcting the incorrect memory word at a bit position located by said error locator quantity for an error amounting to said error symbol; and

output means for outputting a corrected user word from said correcting means.

4,335,459

SINGLE CHIP RANDOM ACCESS MEMORY WITH INCREASED YIELD AND RELIABILITY

Richard L. Miller, P.O. Box 489, Harvard Square Post Office, Cambridge, Mass. 02238

Filed 1980, Ser. No. 151,690

Int. Cl.³ G11C *29/00*

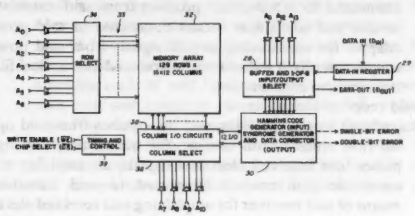
U.S. Cl. 371—38 **28 Claims**

1. A random access integrated circuit memory device of a nominal capacity comprising, on a single semiconductor chip:

a memory array of capacity greater than the nominal capacity of the memory device;

address decoding circuitry for selecting a code word of data and error correction bits from the memory array in accordance with an addressing input signal; and

error correction decode logic circuitry for receiving the selected bits from the memory array and for generating corrected data bits less in number than the selected bits, the number of said corrected data bits and the error correction logic being such that the memory device demonstrates an increased theoretical yield over a like memory device having a memory array of capacity equal to said nominal capacity of the device.

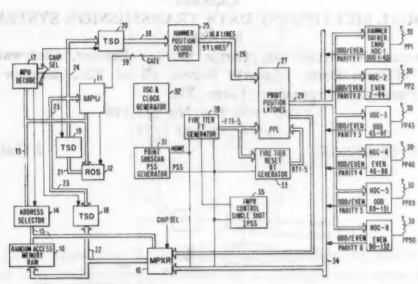


4,335,460

PRINTER SYSTEM HAVING PARITY CHECKING OF PRINT HAMMERS USING SOFTWARE CONTROL

Richard D. Bolcavage, Kirkwood; Armand J. Ferraro, Endicott, both of N.Y., and Arthur E. Fleek, Cary, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed 1980, Ser. No. 115,841
Int. Cl.[3] G06F *11/10*
U.S. Cl. 371—49 **16 Claims**



1. In a printer system, the combination comprising

a plurality of print hammers and a plurality of operating circuits operable for individually actuating said plurality of said print hammers;

a moving type belt or the like having characters alignable with said hammers in a plurality of subscan sequence arrangements; and

a printer control means for selectively operating said print hammers in timed relation with the alignment of said characters with said print hammers including

print hammer selection means connected to said operating circuits and operable in a plurality of successive subscans for selectively activating various combinations of said operating circuits in accordance with said sequence arrangements; and checking means for periodically checking the condition of said operating circuits including

parity circuit means operatively connected with said operating circuits and operable in response to the operative condition of said operating circuits for generating an actual parity signal indicative of the actual condition of said operating circuits,

said actual parity signal from said parity circuit means being continuously updated by said parity circuit means in response to changes in the operative condition of said operating circuits resulting from the operation of said print hammer selection means in the activation and deactivation of said operating circuits in the course of a plurality of subscans,

said actual parity signal from said parity circuit means representing the instantaneous operative condition of said plurality of operating circuits,

storage means for storing expected parity information representing print hammers to be activated for each of said plurality of subscans,

processor means connected to said storage means for periodically deriving composite parity information from said expected parity information in said storage means for said plurality of subscans,

said derived composite parity information representing the expected condition of said plurality of operating circuits for said plurality of subscans,

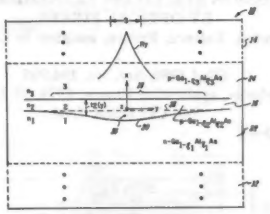
and means controlled by said processor means for periodically comparing said actual parity signal from said parity circuit means with said derived composite parity information for said plurality of said subscans and for providing an error signal in the event of an inequality between said actual parity signal and said derived composite parity information.

4,335,461

INJECTION LASERS WITH LATERAL SPATIAL THICKNESS VARIATIONS (LSTV) IN THE ACTIVE LAYER

William Streifer, Palo Alto; Donald R. Scifres, Los Altos, and Robert D. Burnham, Los Altos Hills, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed 1980, Ser. No. 181,262
Int. Cl.[3] H01S *3/19*
U.S. Cl. 372—45 **5 Claims**



1. In an injection laser comprising a plurality of contiguous layers of semiconductor material, one of said layers fabricated to form an active layer for optical wave propagation under lasing conditions, a cladding layer contiguous with each surface of said active layer and each having a higher bandgap and a lower refractive index than said active layer, said active layer having an active region with a lateral spatial variation in thickness extending from a central point of maximum thickness to adjacent points of minimum thickness, the improvement comprising.

means in said cladding layers to produce a quantitative difference in their relative refractive indices and

the lateral spatial variation of the thickness of said region governed by the ratio of the difference between said maximum and minimum thicknesses relative to said maximum thicknesses in conjunction with the rapidity from said maximum thickness to said minimum thickness being in the range of 0.01 to 0.05.

4,335,462
APPARATUS AND METHOD FOR GENERATING A GLOW DISCHARGE

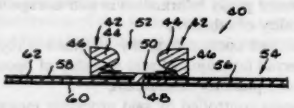
Victor H. Hasson, and Hubertus M. Von Bergmann, both of Pretoria, South Africa, assignors to The South African Inventions Development Corporation, Pretoria, South Africa

Continuation of Ser. No. 958,858, Nov. 8, 1978, abandoned. This application 1980, Ser. No. 207,095

Claims priority, application South Africa, 1977, 77/7022; 1978, 78/0669

Int. Cl.³ H01S 3/097

U.S. Cl. 372—85 38 Claims



1. An apparatus for generating a transversely excited high pressure glow discharge in a gas, including;

two spaced-apart main discharge electrodes which define between them a main discharge gap;

a means for immersing the main discharge electrodes in a pressurized gas;

a discharge inducing member that is of an insulating material and which provides a trigger discharge surface adjacent the electrodes and bridging the main discharge gap; and

an auxiliary conductor located on the other side of the discharge inducing member to the main discharge electrodes which is significantly capacitively coupled with at least a first one of the main discharge electrodes for initiating a self-triggered low order trigger discharge across at least a portion of the trigger discharge surface when an excitation pulse is applied across the main discharge electrodes to photoionize the gas in the main discharge gap and cause a glow discharge between the main electrodes.

4,335,463
SIMULTANEOUS INTEGRAL MULTI-ACCESS TRANSMISSION SYSTEM ON TRANSMISSION LINES BY OPTICAL FIBRES

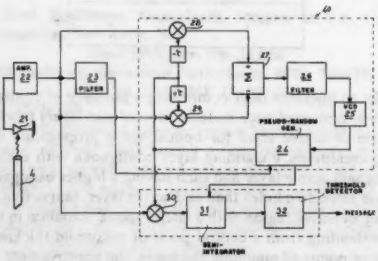
Joseph Foucard, Valence, France, assignor to Crouzet, Paris, France

Filed 1980, Ser. No. 194,906

Claims priority, application France, 1979, 79 25741

Int. Cl.³ H04K 1/04

U.S. Cl. 375—1 1 Claim



1. A system for transmitting information in the form of electrical signals from an emitter to a receiver by an optical fiber transmission medium, said system being characterized in that

said emitter comprises:

shaper means for shaping said electrical signals; code generator for generating a pseudo-random code; modulator means connected to said shaper means and said generator for deriving a product of said shaped electrical signals and said pseudo-random code so that the spectrum of the information contained in the electrical signals to be transmitted is spread over all the pass-band availabe at the emitter side of said transmission medium; a power adapter connected to receive said product from said modulator means; and transducer means connected to said power adapter for transducing output signals from said power adapter into light pulses to be introduced into optical fiber transmission medium; and

said receiver comprises:

transducer means receiving said light pulses from said optical fiber transmission medium for transducing said light pulses into received electrical signals; an amplifier with automatic gain control connected to said transducer means of said receiver for amplifying said received electrical signals; a synchronization acquisition passive filter connected to receive amplified signals from said amplifier; a further pseudo-random code generator connected to receive filtered signals from said passive filter; a voltage controlled oscillator connected to provide a clock signal to said further generator for controlling the latter; servo-control means connected between said amplifier and said oscillator for synchronizing said voltage controlled oscillator; a multiplier connected to said further generator and to said amplifier for deriving a further product of output signals of said further generator and said amplifier; a semi-integrator connected to receive said further product from said multiplier; and a threshold detector connected to said semi-integrator for restoring the electrical signals transmitted by the emitter.

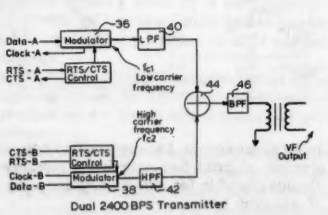
4,335,464
DUAL MULTIPOINT DATA TRANSMISSION SYSTEM MODEM

Thomas R. Armstrong, Largo; Gordon Bremer, Clearwater; Williams Betts, Maderia Beach, all of Fla., assignor to Paradyne Corporation, Largo, Fla.

Filed 1980, Ser. No. 115,118

Int. Cl.³ H04J 1/18

U.S. Cl. 375—43 2 Claims



1. A data communication system comprising at least two independent multipoint networks sharing common user site locations and a common communications link connecting said common user site locations, said system comprising:

a first network terminal at each of said common site locations;

a second network terminal at each of said common site locations;

and a modem at each of said common site locations, each of said modems including:

a transmitter having a first modulator connected to said first network terminal and a second modulator connected to said second network terminal;

first high pass filter means connected to the output of one of said modulators and first low pass filter means connected to the output of the other of said modulators;

means for combining the outputs of said first high pass and

first low pass filters and feeding the combined output to said common communications link;

a receiver having a first demodulator connected to said first network terminal and a second demodulator connected to said second network terminal; and,

second high pass filter means interposted between said communications link and said first demodulator and second low pass filter means interposed between said communications link and said second demodulator whereby each of said modems receives and transmits data over said common communications link within a high frequency spectrum defined by said first and second high pass filter means for said first network and within a low frequency spectrum defined by said first and second low pass filter means for said second network.

4,335,465

METHOD OF PRODUCING AN ACCELLERATING ELECTRONS AND IONS UNDER APPLICATION OF VOLTAGE AND ARRANGEMENTS CONNECTED THEREWITH

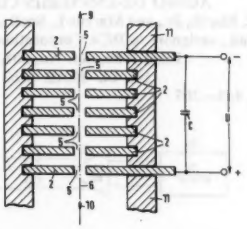
Jens Christiansen, An den Hornwiesen 4, 8521 Erlangen-Buckenhof, and Christoph Schultheiss, Schleifweg 19, 8521 Erlangen-Uttenreuth, both of Fed. Rep. of Germany

Filed 1979, Ser. No. 8,162

Claims priority, application Fed. Rep. of Germany, 1978, 2804393

Int. Cl.³ G21G *1/06;* H01J *17/00*

U.S. Cl. 376—156 **23 Claims**



1. An apparatus for producing and accelerating electrons and ions under the application of a voltage, said apparatus comprising:

electrode means comprising at least two spaced electrodes, each of said electrodes including a peripheral region and an interior region and means defining at least one aperture in said interior region, said means defining at least one aperture being aligned at each electrode and defining a gas-discharging path;

gas supply means for providing an ionizable low pressure gas in said gas-discharge path;

insulator means for preventing a spark-like gas-discharge between said electrodes at the peripheral regions of said electrodes; and

further means for producing separate and oppositely-directed accelerated flows of ions and electrons, respectively, along said gas-discharge path, said further means comprising voltage supply means connected to said at least two electrodes, for establishing an electrical potential therebetween such that a high current spark-like gas-discharge occurs in said ionizable gas concentrated along said gas-discharge path;

wherein the product of the pressure in mbar of the ionizable gase and the distance between the two spaced electrodes in mm is in the range of 0.05 to 0.50 mbar×mm, and wherein said electrical potential is at least approximately five kilovolts.

4,335,466

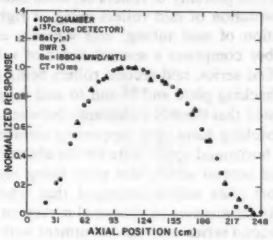
METHOD AND APPARATUS FOR MEASURING IRRADIATED FUEL PROFILES

David M. Lee, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed 1980, Ser. No. 134,352

Int. Cl.³ G21C *17/00*

U.S. Cl. 376—257 **16 Claims**



1. A method of substantially instantaneously measuring the axial gross gamma activity profile of a irradiated fuel assembly, said method comprising:

using a multielement detector requiring no collimator and requiring no scanning, said detector comprising a plurality of spaced apart substantially identical individual current-measuring (as opposed to pulse-measuring) detectors to measure substantially instantaneously a profile of gross gamma activity as a function of axial position along said fuel assembly.

4,335,467

LIQUID METAL COOLED NUCLEAR REACTOR

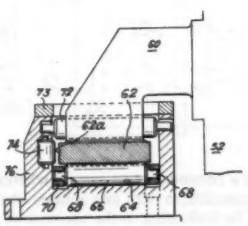
Marcel Robin, Sevres, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed 1979, Ser. No. 51,520

Claims priority, application France, 1978, 78 18821

Int. Cl.³ G21C *9/00*

U.S. Cl. 376—285 **3 Claims**



1. A liquid metal cooled nuclear reactor comprising in combination

(a) a vessel for receiving the reactor core and said liquid metal;

(b) at least one heat exchanger for ensuring a heat exchange between said liquid metal and a second fluid;

(c) a first duct for connecting said vessel with the inlet of the heat exchanger, said duct opening into said vessel above the core; and

(d) a second duct for connecting said vessel with the outlet of said heat exchanger said vessel being provided, along the outer periphery thereof, with a first supporting means situated between said ducts said first duct being substantially rectilinear and horizontal and opening into said

vessel above, and in the vicinity of, said first supporting means, said heat exchanger provided with a second supporting means at a level that is above the reactor support level wherein the stresses resulting from differential expansions of the ducts are reduced and constituted by at least two supporting members diametrically opposed with respect to the vertical axis of the exchanger outer cover, each of said supporting members comprising a horizontal fixed support plate, a horizontal backing plate integral with said exchanger and situated above said support plate, and a first plurality of rollers between said plates, the axes of revolution of said rollers being at right angles to the direction of said tubing; and wherein each supporting member comprises a second series of rollers parallel to said first series, said second rollers being arranged above said backing plate and bound to said supporting plate so mounted that there is a clearance between said rollers and said backing plate such supporting member also comprising a horizontal upper plate for the abutment of the rollers of said second series, said plate being integral with said support plate and so arranged that whenever the heat exchanger assumes an abnormal movement, said rollers of the second series come into abutment with said horizontal upper plate as well as a third series of rollers with vertical axis with respect to the reactor, adapted to form an abutment, in the case of horizontal movements, between said backing plate and a vertical extension of said supporting plate.

4,335,468

SIMULTANEOUS TRANSMISSION SIGNAL DETECTION SYSTEM

George B. Foster, 7140 Linworth Rd., Worthington, Ohio 43085, and David E. Harris, 193 Clinton Hts., Columbus, Ohio 43202

Continuation-in-part of Ser. No. 928,825, Jul. 28, 1978, abandoned. This application 1980, Ser. No. 110,623

Int. Cl.³ H04B *1/44*

U.S. Cl. 455—67 **38 Claims**

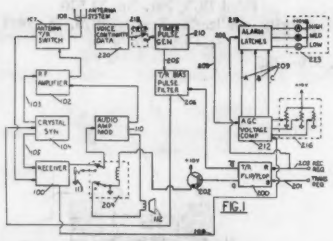


FIG. 1

11. In a communication system wherein multiple radio stations communicate with one another over a single channel, a method for indicating to the operator of a first station who is transmitting over the channel that there is a simultaneous transmission occurring on the channel by another user, possibly blocking or interferring with transmission by the first user comprising the steps of:

disabling the first station's transmission;

monitoring said communication channel for a signal above a predetermined threshold level;

annunciating an alarm in response to a signal exceeding said predetermined threshold level; and

resuming transmission by the first user.

4,335,469

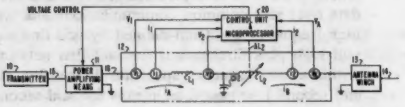
METHOD AND SYSTEM FOR RADIATING RF POWER FROM A TRAILING WIRE ANTENNA

Nelson B. Tharp, Ellicott City, and Harry F. Hartley, Glen Burnie, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1980, Ser. No. 160,354

Int. Cl.³ H01Q *1/30*

U.S. Cl. 455—125 **7 Claims**



1. A method of applying the output of a transmitter power amplifier means to a trailing wire antenna of an airborne RF transmitter system to effect optimum message transmission during extension and retraction toward and from the optimum length of the antenna, comprising

varying the inductance of the antenna coupler in response to the antenna change of length to provide a high-resistance load having minimal reactance to the power amplifier means, and

varying the value of the power output of the power amplifier means as a function of the voltage amplitude sensed at the feed end of the antenna and the voltage and current sensed at opposite sides of the coupler.

4,335,470

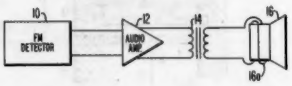
AUDIO DE-EMPHASIS CIRCUIT

James C. Marsh, Jr., and Marcus L. Snell, Jr., both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed 1980, Ser. No. 201,829

Int. Cl.³ H04B *1/10*

U.S. Cl. 455—205 **9 Claims**



1. Audio signal processing apparatus responsive to a source of carrier waves frequency modulated in accordance with audio signals occupying a given frequency band and subject to a preemphasis increasing with frequency over a given high frequency portion of said band comprising:

an FM detector responsive to said modulated carrier waves for recovering said pre-emphasized audio signals therefrom;

a load circuit including a loudspeaker voice coil, and having a response characteristic exhibiting a response which declines with increasing frequency over at least a segment of said high frequency portion of said band, said loudspeaker voice coil contributing significantly to said response characteristic and which decline is complementary to the preemphasis of said audio signals over said band segment; and

audio signal processing means, having an input coupled to said detector to receive said recovered preemphasized audio signals, for providing an amplified version of said audio signals to said load circuit substantially without disturbance of said preemphasis over said band segment.

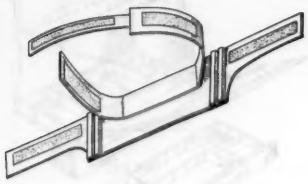
DESIGN PATENTS

GRANTED JUN. 15, 1982

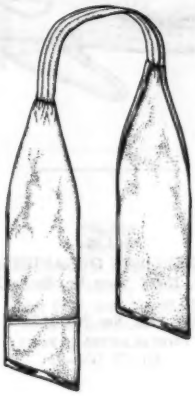
ERRATA

For CLASS	See PATENT NO.
D04–038	264,897
D08–050	264,925
D27–041	264,999

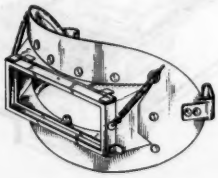
264,890
PATIENT SUPPORTING HARNESS
Rutger Nandorf, S-593 00 Västervik, Sweden
Filed 1979, Ser. No. 102,572
Claims priority, application Sweden, 1979, 79-1435
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—27



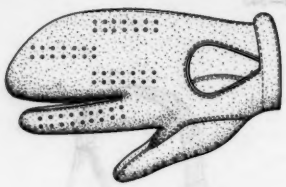
264,892
TIE OR SIMILAR ARTICLE
Dennis T. Stewart, Jr., 2801 Byron St., Wheaton, Md. 20902, and Jerome N. Corbett, 12406 Applecross Dr., Clinton, Md. 20735
Filed 1980, Ser. No. 111,032
Term of patent 14 years
Int. Cl. D2—*99*
U.S. Cl. D2—343



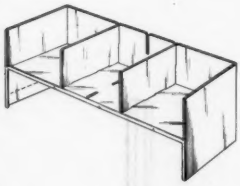
264,891
WELDING SHIELD
Claes E. Rosenius, Malmö, Sweden, assignor to Tegma AB, Malmö, Sweden
Filed 1979, Ser. No. 94,022
Claims priority, application Sweden, 1979, 79-1280
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—233



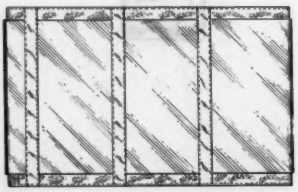
264,893
ATHLETIC GLOVE FOR GOLF, TENNIS, BASEBALL AND RACQUETBALL
Carl Schroeder, 289 NW. Cerritos Dr., Palm Springs, Calif. 92262
Filed 1980, Ser. No. 113,711
Term of patent 14 years
Int. Cl. D2—*06*
U.S. Cl. D2—361



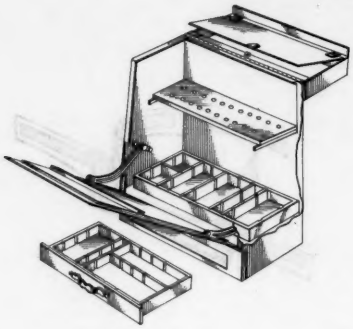
264,894
GLOVE BOX ORGANIZER
Marilyn F. Halder, 25956 Vista Dr. East, Capistrano Beach, Calif. 92624
Filed 1981, Ser. No. 115,008
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—40



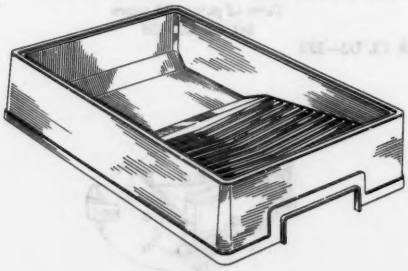
264,895
FLEXIBLE HOSIERY CADDY CASE
Doris H. Hoefert, 188 River Dr., Cary, Ill. 60013
Filed 1979, Ser. No. 97,224
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—48



264,896
TOOL BOX
Donald R. Perkins, 6 Hammond Rd., Natick, Mass. 01760
Filed 1979, Ser. No. 78,100
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—74

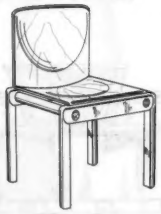


264,897
PAINT TRAY AND LINER THEREFOR
Morley L. Smith, Beaconsfield, Canada, assignor to T. S. Simms & Co. Limited, Saint John, Canada
Filed 1980, Ser. No. 129,811
Claims priority, application Canada, 1980, 04-02-80-10
Term of patent 14 years
Int. Cl. D4—*99*
U.S. Cl. D4—38.2



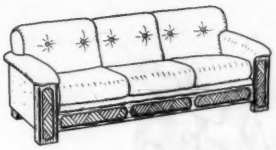
264,898
CHAIR
Richard Baker, and Steven Baker, both of 880 Dillingham Rd., Pickering, Ontario, Canada (L1W 1Z6)
Filed 1979, Ser. No. 101,909
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—26

264,899
CHAIR
Gerd Lange, Kapsweyer, Fed. Rep. of Germany, assignor to Schlapp Moebel GmbH & Co. KG, Neu-Anspach, Fed. Rep. of Germany
Filed 1979, Ser. No. 22,157
Claims priority, application Fed. Rep. of Germany, 1978, 59
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—47

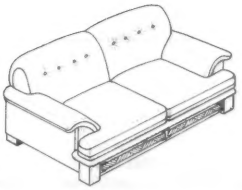


264,900
CHAIR
Leon Rosen, Scarsdale, N.Y., assignor to The Pace Collection, New York, N.Y.
Filed 1979, Ser. No. 46,646
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—56

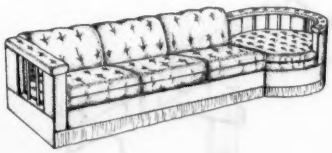
264,901
SEAT
Alan H. Friedman, Millburn, N.J., assignor to The Bean Station Furniture Factory, Bean Station, Tenn.
Filed 1979, Ser. No. 84,997
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



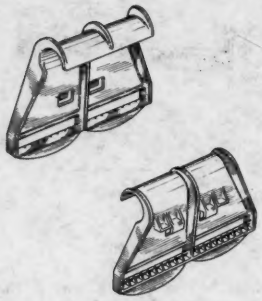
264,902
SEAT
Alan H. Friedman, Millburn, N.J., assignor to The Bean Station Furniture Factory, Bean Station, Tenn.
Filed 1979, Ser. No. 85,028
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



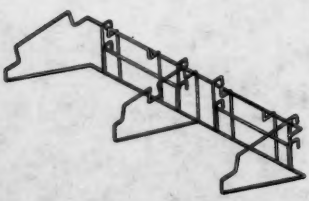
264,903
SOFA
Walter F. Dybal, Westminister, and Robert D. Anderson, Orange, both of Calif., assignors to Shelly & Anderson Furniture Mfg. Co., Compton, Calif.
Filed 1980, Ser. No. 140,566
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63



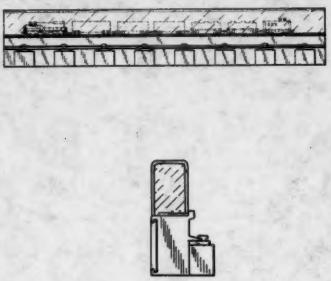
264,904
CLOTHES HANGER HOLDER
Rolf W. Helbig, 24-6679 Shelter Bay Rd., Mississauga, Ontario, Canada (L5N 2A2)
Filed 1979, Ser. No. 56,349
Claims priority, application Canada, 1979, 220679
Term of patent 14 years
Int. Cl. D6—*08;* D8—*08*
U.S. Cl. D6—113



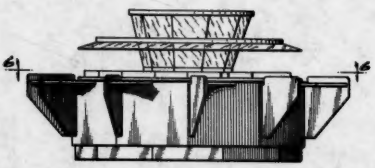
264,905
PLASTIC BAG HOLDING RACK
Gerhard Adamson, West Milford, N.J., assignor to Union Carbide Corporation, Danbury, Conn.
Filed 1980, Ser. No. 142,733
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—114



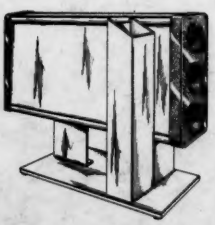
264,906
COMBINED DISPLAY AND STORAGE UNIT FOR A MODEL TRAIN
Ollie N. Franklin, Rte. 1, Box 265A, Anderson, Mo. 64831
Filed 1979, Ser. No. 108,678
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—127



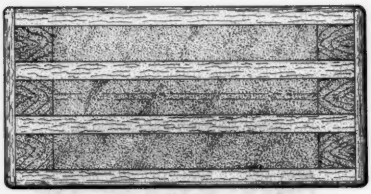
264,907
COMBINED ROTATING CAFETERIA TYPE FOOD SERVICE COUNTER AND DISPLAY SHELF
Donald R. Barnhill, Hamilton, Ohio, assignor to B&W Metals Company, Inc., Fairfield, Ohio
Filed 1979, Ser. No. 63,931
Term of patent 14 years
Int. Cl. D6—*03, 04*
U.S. Cl. D6—146



264,908
COMBINED CUP DISPENSER AND STRAW HOLDER
Jonathan Cooper, Clarke County, Ga., assignor to Royston Manufacturing Corporation, Royston, Ga.
Filed 1980, Ser. No. 153,432
Term of patent 14 years
Int. Cl. D9—*99;* D7—*06*
U.S. Cl. D6—157



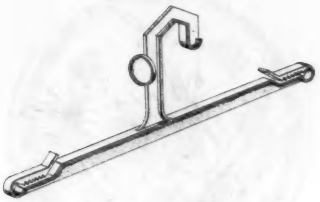
264,909
TABLE
John W. Caldwell, 1829 Warwick Rd., San Marino, Calif. 91108
Filed 1979, Ser. No. 93,212
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



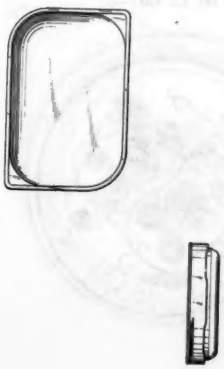
264,910
COMBINED SEAT AND BACKREST FOR A CHAIR
William I. Stephens, Emmaus, Pa., assignor to Knoll International, Inc., New York, N.Y.
Filed 1979, Ser. No. 38,124
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—197

264,911
HANGER FOR ORGANIZING JEWELRY
George R. Annis, Hurst, and Warren E. Persky, Dallas, both of Tex., assignors to Item House, Inc., Dallas, Tex.
Filed 1980, Ser. No. 130,265
Term of patent 14 years
Int. Cl. D6—*04, 08*
U.S. Cl. D6—248

264,912
GARMENT HANGER
Malcolm Bliss, Ridgefield, Conn., and David McCalmont, Bloomfield, N.J., assignors to J. C. Penney Co., Inc., New York, N.Y.
Filed 1980, Ser. No. 164,940
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—254



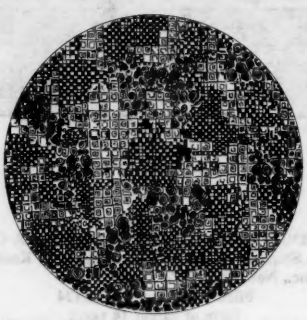
264,913
FOOD DISH
James F. Pomroy, St. Paul, Minn., assignor to Plastics, Inc., St. Paul, Minn.
Filed 1977, Ser. No. 841,694
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—21



264,914
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,117
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,915
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,118
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,916
DINNER PLATE OR SIMILAR ARTICLE
Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 172,145
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23



264,917
DINNER PLATE OR SIMILAR ARTICLE
Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 172,146
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,918
DINNER PLATE OR SIMILAR ARTICLE
David P. G. Williams, Englewood, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 187,210
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,919
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,119
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,920
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,120
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,921
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed 1980, Ser. No. 161,121
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,922

DINNER PLATE OR SIMILAR ARTICLE

Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

Filed 1980, Ser. No. 168,692

Term of patent 14 years

Int. Cl. D07—*01*

U.S. Cl. D7—35

264,923

DINNER PLATE OR SIMILAR ARTICLE

Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.

Filed 1980, Ser. No. 168,695

Term of patent 14 years

Int. Cl. D07—*01*

U.S. Cl. D7—35

264,924

CUTTING AND SERVING BOARD OR THE LIKE

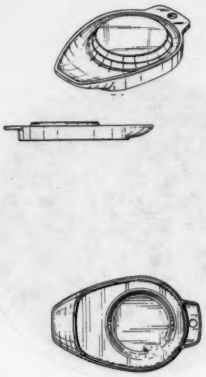
James B. Swett, Altamonte Springs, Fla., assignor to Dart Industries, Inc., Northbrook, Ill.

Filed 1980, Ser. No. 144,467

Term of patent 14 years

Int. Cl. D07—*04*

U.S. Cl. D7—46



264,925

STAPLER

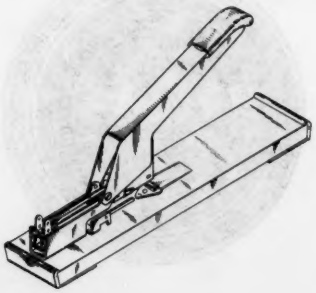
Michael Bass, North Plainfield, and Charles P. Housel, Hackettstown, both of N.J., assignors to The Bates Manufacturing Company, Hackettstown, N.J.

Filed 1979, Ser. No. 81,385

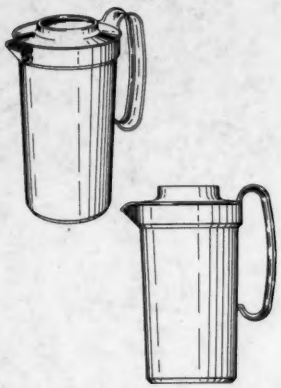
Term of patent 14 years

Int. Cl. D19—*02*

U.S. Cl. D8—50



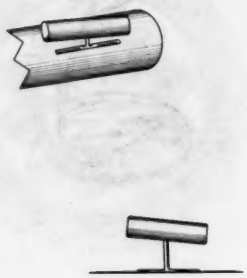
264,926
PITCHER WITH SCREW TOP
Donald R. McClelland, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed 1980, Ser. No. 164,549
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—65



264,927
CAN HOLDER
Karl A. Kurzius, 4246 Eubank, NE, Albuquerque, N. Mex. 87111
Filed 1980, Ser. No. 179,342
Term of patent 14 years
Int. Cl. D07—*99*
U.S. Cl. D7—70

264,928
POT OR PAN RESTRAINT WITH SLOTTED BASE FOR ENGAGING RADIAL BARS OF RECREATION VEHICLE STOVE TOP GRATING
Dominic J. DiFede, 2431 Tartarian Way, Union City, Calif. 94587
Filed 1980, Ser. No. 138,157
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—136

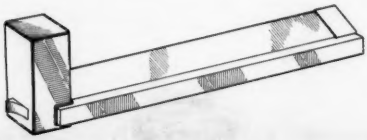
264,929
GARDEN TOOL
Peter Haddad, 118 Taylor St., Titusville, Fla. 32780
Filed 1978, Ser. No. 966,102
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—09



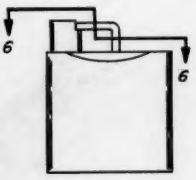
264,930
DRILL GUIDE
Raymond Lindsay, Arcadia, Calif., assignor to The La-Bar Co., Inc., Duarte, Calif.
Filed 1979, Ser. No. 60,507
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—70

264,931
HAMMER IMPLEMENT HEAD
Dale A. Jones, Rte. One, Palmetto, Ga. 30268
Division of Ser. No. 857,797, Dec. 5, 1977, Pat. No. Des. 257,826. This application 1980, Ser. No. 137,377
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D8—78

264,932
EMERGENCY EXIT DOOR LATCH WITH PANIC BAR
Joseph T. Miller, Frederick, and Roy E. VanDerLinden, New Windsor, both of Md., assignors to Reliable Security Systems, Cockeysville, Md.
Filed 1979, Ser. No. 80,251
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—315



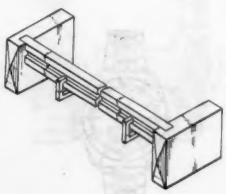
264,933
METER BOX PADLOCK
Marvin G. Woempner, Rte. 4, Box 707, Thomasville, N.C. 27360
Filed 1980, Ser. No. 146,912
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—334



264,934
ROPE HOOK
Kenneth Brooks, 469 S. Delaware Ave., Lindenhurst, N.Y. 11757
Filed 1980, Ser. No. 150,315
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—367

264,935
COMBINED SUPPORT AND DISPLAY BRACKET FOR A SELF-CONTAINED BREATHING APPARATUS
Theodore Ziaylek, Jr., Yardley, Pa., assignor to Ziamatic Corporation, Yardley, Pa.
Filed 1980, Ser. No. 159,033
Term of patent 14 years
Int. Cl. D6—*04*; D8—*08*
U.S. Cl. D8—373

264,936
CURTAIN ROD
Damien Ross, 1615 Gouin Blvd. West, Montreal, Quebec, Canada
Filed 1980, Ser. No. 144,176
Claims priority, application Canada, 1980, 13-02-80-1
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—376



264,937
BOTTLE
James B. Groark, London, England, assignor to Seagram United Kingdom Limited, Great Britain
Filed 1980, Ser. No. 163,575
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—349

264,938
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology & Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 170,518
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352

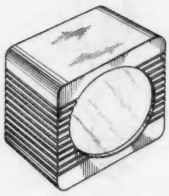
264,939
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology & Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 170,519
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352

264,940
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 180,649
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352

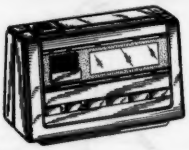
264,941
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.
Filed 1980, Ser. No. 180,665
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—370

264,942
BOTTLE
Warren J. Schieser, Dublin, and Craig L. Duffey, Galena, both of Ohio, assignors to Liqui-Box Corporation, Worthington, Ohio
Filed 1980, Ser. No. 153,191
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—401

264,943
HOUSING FOR CLOCK OR TIMER
Gene R. Hammond, Torrington, Conn., assignor to Cole & Mason U.S.A., Ltd., Great Neck, N.Y.
Filed 1980, Ser. No. 147,403
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—1



264,944
CLOCK
Gerald C. Palmer, Eagan, Minn., assignor to Sakon Industries, Inc., New York, N.Y.
Filed 1980, Ser. No. 159,683
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—15

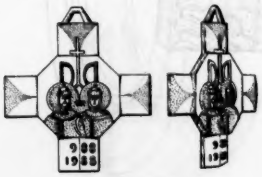


264,945
WRISTWATCH
Brian Pennell, 9 Cod Fish La., Weston, Conn. 06883
Filed 1980, Ser. No. 118,497
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—32

264,946
WATCHCASE
Yoshio Hirabayashi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed 1980, Ser. No. 148,334
Claims priority, application Japan, 1979, 47297
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38

264,947
RING
George J. Solow, 7 Fieldstone La., Great Neck, N.Y. 11020; Jack Guttschneider, 200 E. 71st St., New York, N.Y. 10021, and Peter H. Solow, 6 Madison Ave., Jericho, N.Y. 11753
Filed 1980, Ser. No. 136,295
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—36

264,948
MEDALLION
Thaddeus Krawchuk, and Christine Opalinski, both of Winnipeg, Canada, assignors to Ukrainian Catholic Mission of the Most Holy Redeemer, Winnipeg, Canada
Filed 1980, Ser. No. 142,074
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—96



264,949
TREE ORNAMENT
Lucy Smart, 229 51st St., Lindenhurst, N.Y. 11791
Filed 1980, Ser. No. 152,654
Term of patent 14 years
Int. Cl. D11—*05*
U.S. Cl. D11—118

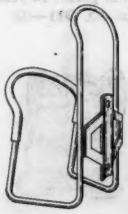
264,950
FIGURINE OF A KOALA BEAR
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed 1979, Ser. No. 19,229
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

264,951
FIGURINE OF A HUSKY PUP
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed 1979, Ser. No. 81,912
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

264,952
FIGURINE OF A SEAL
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed 1979, Ser. No. 104,694
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

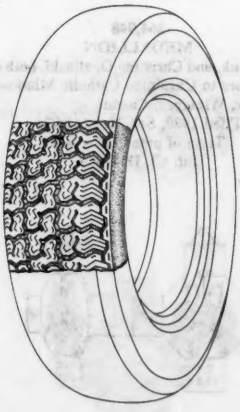
264,953
MOTORTRICYCLE
Hiroshi Shimoyama, Fujimi, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed 1979, Ser. No. 62,227
Claims priority, application Japan, 1979, 54/4217
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—110

264,954
BICYCLE BOTTLE CAGE
James R. Blackburn, Campbell, Calif., assignor to Jim Blackburn Designs, Campbell, Calif.
Filed 1979, Ser. No. 70,854
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—114



264,955
STROLLER
Frederick M. Johnson, 762 Lazy Circle Dr., Vista, Calif. 92083
Filed 1980, Ser. No. 149,822
Term of patent 14 years
Int. Cl. D12—*12*
U.S. Cl. D12—129

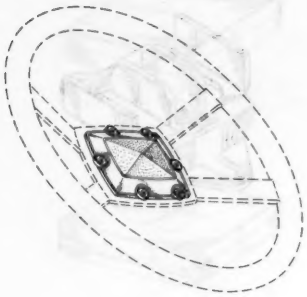
264,956
TIRE
Claude A. Hart, Sutton Coldfield, England, assignor to Dunlop Limited, London, England
Filed 1980, Ser. No. 167,062
Claims priority, application United Kingdom, 1980, 80993439
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



264,957
CENTER HUB FOR A STEERING WHEEL

John R. Schinella, 3317 Greentree Dr., Bloomfield Hills, Mich. 48013, and Herbert L. Adams, III, 1036 San Carlos Rd., Pebble Beach, Calif. 93953

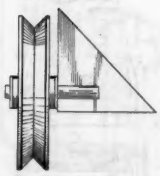
Filed 1979, Ser. No. 20,659
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—176



264,958
WHEEL ASSEMBLY FOR POULTRY CAGE-TOP SERVICE VEHICLE

Gerald L. Kitson, 9709 Belding Rd. NE., Rockford, Mich. 49341

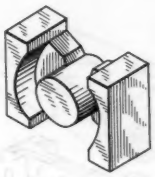
Continuation of Ser. No. 577,196, May 14, 1975, abandoned, which is a continuation of Ser. No. 315,288, Dec. 15, 1972, abandoned, which is a division of Ser. No. 160,244, Jun. 6, 1971, Pat. No. Des. 288,024. This application 1976, Ser. No. 755,580
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—204



264,959
TRANSFORMER CORE MEMBER

Junpei Ota, Matsudo; Masaru Wasaki, Chiba, and Tadashi Mitsui, Tokyo, all of Japan, assignors to TDK Electronics Co. Ltd., Tokyo, Japan

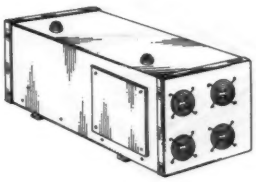
Filed 1979, Ser. No. 51,005
Claims priority, application Japan, 1979, 54-002041
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—4



264,960
HOUSING FOR A SILICON CONTROLLED RECTIFIER DEVICE

Ronald Secrest, P.O. Box 61, Langhorne, Pa. 19047

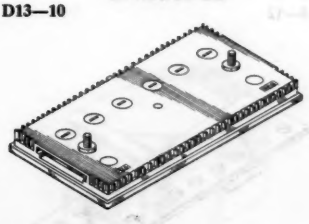
Filed 1979, Ser. No. 82,500
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—4



264,961
COVER FOR BATTERY CASE

Terry Oxenreider, Wernersville, Pa., assignor to General Battery Corporation, Reading, Pa.

Filed 1980, Ser. No. 127,730
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—10



264,962

PORTABLE POWER SOURCE FOR A GRASS CUTTER

Ruedi Fellmann, Dietlikon, Switzerland, assignor to Max Langenstein Feld- und Gartelgeräte, Illertissen, Fed. Rep. of Germany

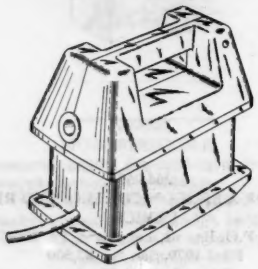
Filed 1980, Ser. No. 133,329

Claims priority, application Fed. Rep. of Germany, 1979, MR898

Term of patent 14 years

Int. Cl. D13—*01*

U.S. Cl. D13—11



264,963

COMPONENT MOUNTING PLATE FOR A PC BOARD INDICATOR AND CONTROL DEVICE

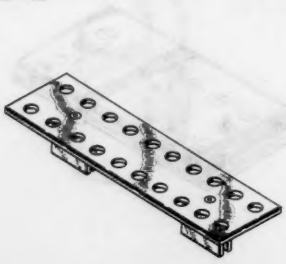
Ralph J. McComas, Boulder Creek, Calif., assignor to Perception Electronics, Inc., San Jose, Calif.

Filed 1979, Ser. No. 44,523

Term of patent 14 years

Int. Cl. D13—*03*

U.S. Cl. D13—12



264,964

HEAT SINK OR SIMILAR ARTICLE

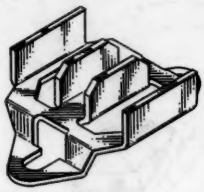
Howard G. Hinshaw, Dallas, Tex., assignor to Thermalloy Incorporated, Dallas, Tex.

Filed 1980, Ser. No. 168,541

Term of patent 14 years

Int. Cl. D13—*03*

U.S. Cl. D13—23



264,965

ELECTRICAL CONNECTOR ADAPTER

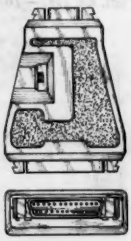
Robert H. Frantz, Newville, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed 1979, Ser. No. 103,875

Term of patent 14 years

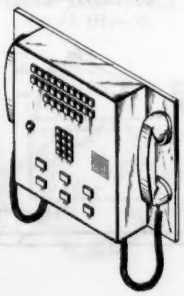
Int. Cl. D13—*03*

U.S. Cl. D13—24

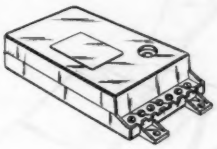


264,966
VIDEO TAPE MAGAZINE
Kimiyoshi Ban, Kasukabe, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed 1980, Ser. No. 161,306
Claims priority, application Japan, 1979, 54-54358
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—11

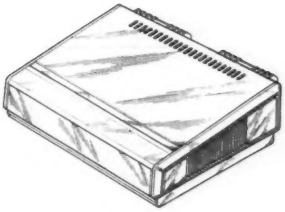
264,967
TELEPHONE CONSOLE
Alfred R. Ender, West Windsor Township, Mercer County, and Robert F. Iacullo, Tenafly, both of N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed 1980, Ser. No. 147,779
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—56



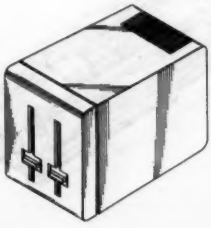
264,968
RADIO TRANSMITTER
Keisuke Iwata, Tokyo, Japan, assignor to Iwata Electric Co., Ltd., Tokyo, Japan
Filed 1979, Ser. No. 59,987
The portion of the term of this patent subsequent to 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—95



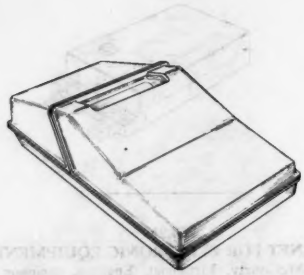
264,969
CABINET FOR ELECTRONIC EQUIPMENT
Michael J. McGourty, Littleport, England, assignor to Pye (Electronic Products) Limited, Cambridge, England
Filed 1979, Ser. No. 10,878
Claims priority, application United Kingdom, 1978, 985888/78; 1978, 985889/78
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—96



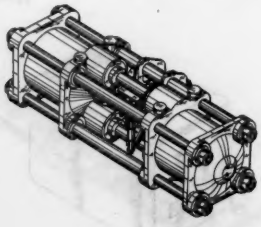
264,970
FLOPPY DISK READER/RECORDER OR THE LIKE
Vincent Giannotti, Jr., Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed 1980, Ser. No. 159,714
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—109



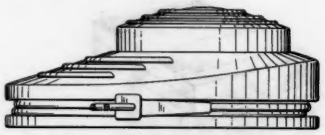
264,971
MODULAR COMPUTER SYSTEM PRINTER
George E. Chadima, Jr., Cedar Rapids, Iowa, assignor to Norand Corporation, Cedar Rapids, Iowa
Filed 1979, Ser. No. 91,184
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—111

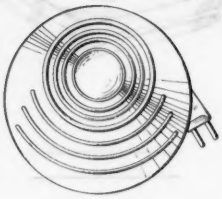


264,972
FLUID PUMP
John R. McMillin, Maplewood, Minn., and Gene A. Tracy, Amery, Wis., assignors to The Coca-Cola Company, Atlanta, Ga. and The Cornelius Company, Anoka, Minn.
Filed 1980, Ser. No. 117,339
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D15—7

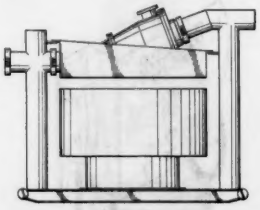


264,973
SEWING MACHINE CONTROLLER
Susumu Hanyu, Hachioji, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed 1979, Ser. No. 90,484
Claims priority, application Japan, 1979, 54-37475
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—72

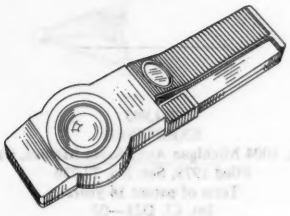




264,974
APPARATUS FOR CLEANING DRILLING MUD AND FLUIDS
Don D. Summers, P.O. Box 30106, Lafayette, La. 70503
Filed 1980, Ser. No. 119,092
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—199

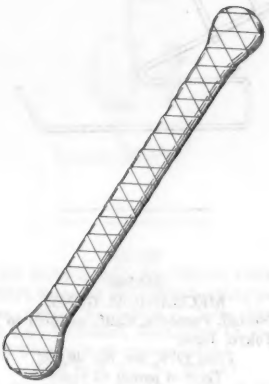


264,975
PHOTOGRAPHIC CAMERA
Norbert Schlagheck; Herbert Schultes, both of Fuerstenfeldbruck, and Karlheinz Rubner, Munich, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany
Filed 1979, Ser. No. 102,322
Claims priority, application Fed. Rep. of Germany, 1979, 5MR559G163791
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—1

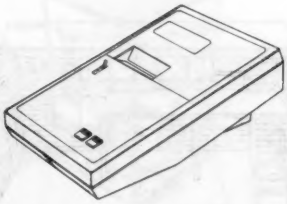


264,976
EYE GLASS CASE
Dorothy R. Greene, 28064 Fairacres La., P.O. Box 69, Helendale, Calif. 92342
Filed 1980, Ser. No. 135,707
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D16—129

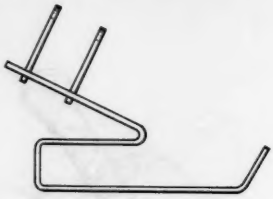
264,977
DRUM MALLET
Robert Starks, 1831 N. Gramercy Pl., Hollywood, Calif. 90028
Filed 1980, Ser. No. 131,145
Term of patent 14 years
Int. Cl. D17—*04*
U.S. Cl. D17—22



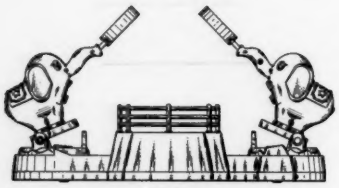
264,978
PRINTING DEVICE
Toshiro Ohno, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed 1980, Ser. No. 184,190
Claims priority, application Japan, 1980, 55-009698
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D18—13



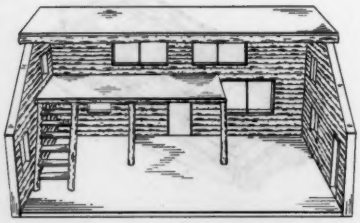
264,979
CALENDAR HOLDER
Edward J. Goldman, P.O. Box 2113, Mansfield, Mass. 02048
Filed 1980, Ser. No. 173,088
Term of patent 14 years
Int. Cl. D19—*03*
U.S. Cl. D19—20



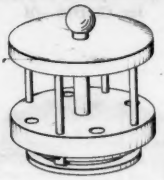
264,980
MECHANICAL GAME
Michael W. Nuttall, Pasadena, Calif., assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed 1979, Ser. No. 40,598
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—2



264,981
DOLL HOUSE OR SIMILAR ARTICLE
Charles L. Clemons, 2180 Hillside Dr., Eau Claire, Wis. 54701
Filed 1980, Ser. No. 128,954
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—114

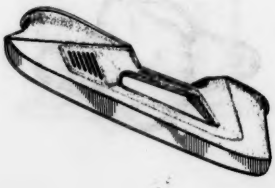


264,982
TOY CAROUSEL
Hubert H. Jackson, 1875 Catalpa Way, Hayward, Calif. 94545
Filed 1980, Ser. No. 135,520
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—124



264,983
EXERCISER
Terry Logan, 1004 Michigan Ave., Santa Monica, Calif. 90404
Filed 1979, Ser. No. 77,736
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198

264,984
ICE SKATE BLADE
Icaro Olivieri, Montebelluna, Italy, assignor to Gamebridge Inc., St. Jerome, Canada
Filed 1980, Ser. No. 162,602
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—225



264,985

SKI ROPE HANDLE AND HOLDER

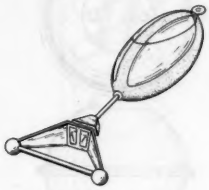
Terry M. Haber, Santa Ana, Calif.; James H. Wilson, 29962 Happy Sparran, Laguna Niguel, Calif. 92677, and Edward E. Darrow, 1811 Bridal Path Way, Santa Ana, Calif. 92705, assignors to James H. Wilson and Edward E. Darrow, both of Laguna Niguel, Calif., a part interest

Filed 1980, Ser. No. 151,198

Term of patent 14 years

Int. Cl. D21—*02*

U.S. Cl. D21—230



264,986

BOWLING PIN CORE

Herbert J. Booms, 1723 S. Van Dyke, Bad Axe, Mich. 48413

Filed 1980, Ser. No. 145,581

Term of patent 14 years

Int. Cl. D21—*02*

U.S. Cl. D21—233

264,987

ROCKING TOY

Maebelle C. Wise, P.O. Box 453, Munday, Tex. 76371

Filed 1980, Ser. No. 171,085

Term of patent 14 years

Int. Cl. D21—*03*

U.S. Cl. D21—251

264,988

FISHING REEL FOR MOUNTING ON ARCHERY BOW

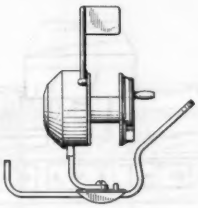
Robert L. Finlay, Emporia, Kans., assignor to BPE, Inc., Emporia, Kans.

Filed 1980, Ser. No. 180,868

Term of patent 14 years

Int. Cl. D22—*05*

U.S. Cl. D22—25



264,989

SUPPORT DEVICE FOR SIGHTING FIREARMS

Sixten Wohlfahrt, deceased, late of 561 Nockeby backe 8, S–161 51 Bromma, Sweden by Agneta S. Palm, Née Wohlfahrt, Harnösand; Lars Wohlfahrt, Stockholm; Thomas Wohlfahrt, Viken, all of Sweden, legal representatives

Filed 1978, Ser. No. 948,443

Claims priority, application Sweden, 1978, 78-909

Term of patent 14 years

Int. Cl. D22—*99*

U.S. Cl. D22—99

264,990

WOOD AND COAL BURNING STOVE

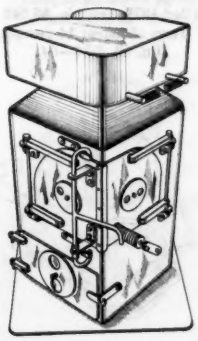
Peter Kilham, Box 98, Mill Rd., Foster, R.I. 02825

Filed 1980, Ser. No. 160,101

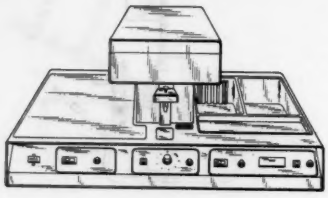
Term of patent 14 years

Int. Cl. D23—*03*

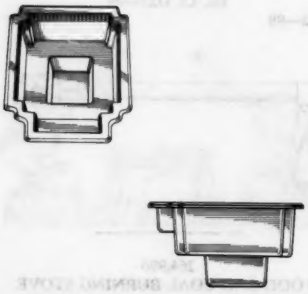
U.S. Cl. D23—97



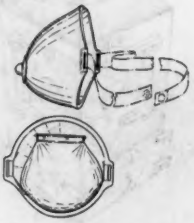
264,991
APPARATUS FOR PREPARING SPECIMENS FOR HISTOLOGICAL EXAMINATION
Robert S. Quandt, Libertyville, Ill., assignor to Sybron Corporation, Rochester, N.Y.
Filed 1980, Ser. No. 158,855
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—8



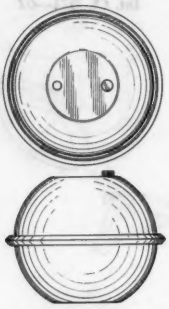
264,992
HYDROTHERAPY SPA
Lino Z. Topete, 1845 E. San Antonio St., San Jose, Calif. 95116
Filed 1979, Ser. No. 95,206
Term of patent 14 years
Int. Cl. D24—*01;* D23—*02;* D25—*99*
U.S. Cl. D24—38



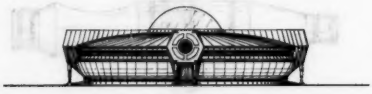
264,993
SIMULATED BREAST NURSER
Judith Kestenberg, New York, N.Y., assignor to Child Development Research, Sands Point, N.Y.
Filed 1979, Ser. No. 88,042
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—47



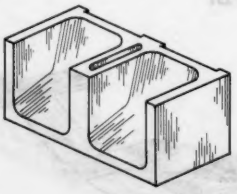
264,994
CANISTER FOR LIQUID MEDICATION AND WATER
S. Mark Rippley, 302 Island Dr., Richardson, Tex. 75081
Filed 1980, Ser. No. 139,355
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—56



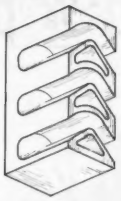
264,995
RESTAURANT BUILDING
John E. Gearhart, Mt. Wolf, Pa.
Filed 1980, Ser. No. 165,364
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—11



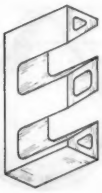
264,996
SCULPTURED VENTILATING CONCRETE BLOCK
Arnold C. Siedschlag, 3219 E. Earli Dr., Phoenix, Ariz. 85018
Filed 1980, Ser. No. 139,351
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—91



264,997
VENTILATING CONCRETE BLOCK
Arnold C. Siedschlag, Phoenix, Ariz., assignor to Warren F. B. Lindsley, Phoenix, Ariz., a part interest
Filed 1980, Ser. No. 139,279
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—97

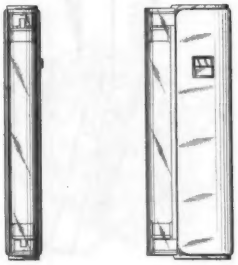


264,998
LOUVERED CONCRETE BLOCK
Arnold C. Siedschlag, Phoenix, Ariz., assignor to Warren F. B. Lindsley, Phoenix, Ariz., a part interest
Filed 1980, Ser. No. 139,350
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—97

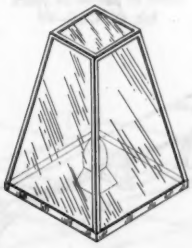


264,999
CIGARETTE LIGHTER
Laura S. Eisenberg, Mt. Vernon, N.Y., assignor to Seymour C. Yuter, Briarcliff Manor, N.Y.
Filed 1979, Ser. No. 105,716
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D27—41

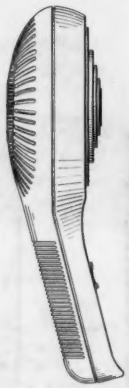
265,000
PORTABLE FLUORESCENT LIGHT
Noel E. Zeller, White Plains, N.Y., assignor to Zelco Industries, Inc., Mt. Vernon, N.Y.
Filed 1980, Ser. No. 120,131
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—42



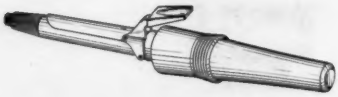
265,001
LAMP
Ellis M. Graham, 6316 Linwood Ave., Norfolk, Va. 23513
Filed 1979, Ser. No. 6,334
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—104



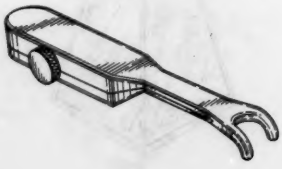
265,002
RADIANT HEAT HAIR DRYER
Otto Hubner, Mauerkircher Strasse 199, Herzog Park, Munich (8000 Munchen 81), Fed. Rep. of Germany
Filed 1980, Ser. No. 114,850
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—13



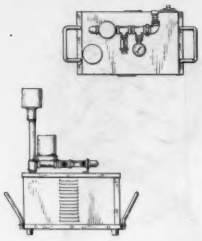
265,003
CURLING IRON
Steven R. Groner, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed 1980, Ser. No. 167,587
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—35



265,004
DENTAL FLOSS HOLDER
Michael D. Davis, Box 25, Sadorus, Ill. 61872
Filed 1980, Ser. No. 138,200
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D28—64

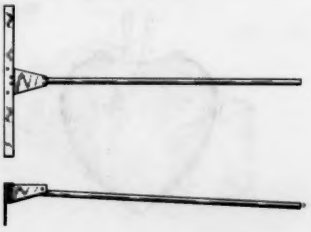


265,005
ELECTRIC AMBIENT AIR BREATHING PUMP
Edwin Reinhorn, 8402-E N. Magnolia, Santee, Calif. 92071
Filed 1980, Ser. No. 149,277
Term of patent 14 years
Int. Cl. D24—*01;* D15—*02*
U.S. Cl. D29—7



265,006
FILTERING FACE PIECE
William T. Levy, London, England, assignor to Martindale Protection Limited, London, England
Filed 1979, Ser. No. 81,441
Claims priority, application United Kingdom, 1979, 989357
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D29—8

265,007
SNOW REMOVAL DEVICE
Robert J. Cuta, 5017 Twin Oaks Dr., Madison, Wis. 53714
Filed 1980, Ser. No. 125,691
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D32—49



265,008

APPLIQUE FOR A SHIRT OR THE LIKE

E'Su B. O'Bassey, Newcastle upon Tyne, England, assignor to Continents Five Agencies Limited, Newcastle upon Tyne, England

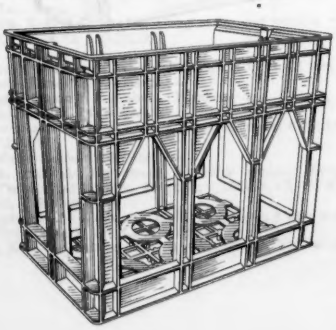
Filed 1979, Ser. No. 101,683
Claims priority, application United Kingdom, 1979, 990313
Term of patent 14 years
Int. Cl. D5—*04*
U.S. Cl. D33—32 R

265,009

BOTTLE CRATE

Theodor M. Box, Brielle, N.J., assignor to Cities Service Company, Tulsa, Okla.

Filed 1980, Ser. No. 145,490
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D34—40

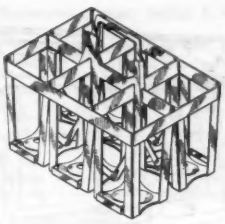


265,010

CARRIER FOR CONTAINERS OR THE LIKE

Prentice J. Wood, Hapeville, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed 1980, Ser. No. 151,532
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D34—44

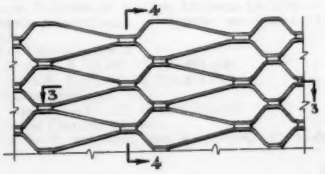


265,011

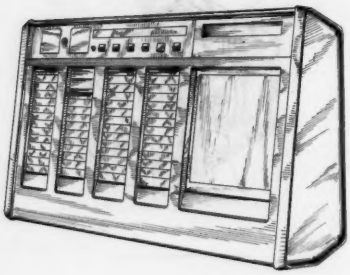
EXPANDED PANEL OF EXTRUDED METAL

William L. Jury, Royal Park, Australia, assignor to John McIlwraith Industries, Ltd., Royal Park, Australia

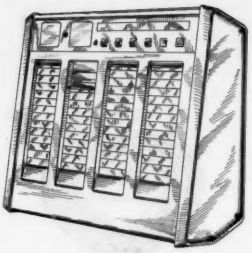
Filed 1980, Ser. No. 134,790
Claims priority, application Australia, 1979, 79,143
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D92—26



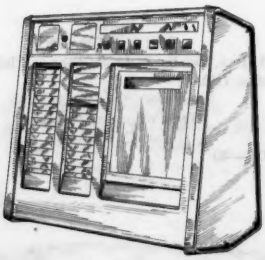
265,012
SAFE WITH DEPOSIT BOX
Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany
Filed 1980, Ser. No. 145,045
Claims priority, application Fed. Rep. of Germany, 1979, MR 10887
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—28



265,013
SAFE
Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany
Filed 1980, Ser. No. 145,046
Claims priority, application Fed. Rep. of Germany, 1979, MR 10887
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—28



265,014
SAFE DEPOSIT BOX
Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany
Filed 1980, Ser. No. 145,047
Claims priority, application Fed. Rep. of Germany, 1979, 10887
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—28



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF JUNE, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. B. Chance Company: *See*—
Dziedzic, Edward, 4,334,392, Cl. 52-157.000.

A/S Moelven Brug: *See*—
Granlund, Per, 4,334,562, Cl. 144-193.00A.

A. Stephan u. Sohne GmbH & Co.: *See*—
Eusterbarkey, Friedhelm, 4,334,789, Cl. 366-343.000.

Aaron, Jon D.: *See*—
Habdas, Edward P.; and Aaron, Jon D., 4,334,940, Cl. 156-89.000.

AB Celleco: *See*—
Frykhult, Rune H., 4,334,986, Cl. 209-17.000.

AB Siwertell: *See*—
Tingskog, Karl A. L., 4,334,818, Cl. 414-139.000.

AB Volvo: *See*—
Bergstrom, Carl-Ingvar A., 4,334,696, Cl. 280-725.000.

Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, to Toho Ganryo Kogyo Co., Ltd.; and Nippon Chemical Industrial Co., Ltd., part interest to each. Process for preparing stable inorganic pigment. 4,334,933, Cl. 106-305.000.

ACF Industries, Incorporated: *See*—
Alvarez, Patricio D.; and Trevino, Robert J., 4,334,666, Cl. 251-167.000.

Acker, William F., to Honeywell Inc. Variable gain amplifier. 4,335,361, Cl. 330-285.000.

Ackermann, Peter: *See*—
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.

Acurex Corporation: *See*—
Carter, Howard J.; and Staiger, William C., 4,334,603, Cl. 193-32.000.

Adamowicz, Philippe J.; Platel nee Bonnet, Alberte; and Muller, Ludwig, to Institut Pasteur. Process for purifying particles of biological origin, particularly the surface antigen of the virus of hepatitis B (AgHBs). 4,335,214, Cl. 435-239.000.

Adams, Richard E.; and Stafford, Richard W., to Emhart Industries, Inc. Timer switch module. 4,335,282, Cl. 200-38.00R.

Adams, Rudolph J., to Reed National Corp. Fire and smoke damper. 4,334,570, Cl. 160-1.000.

Adell, Robert, to U.S. Product Development Co. Door edge guard. 4,334,700, Cl. 280-770.000.

Adelman, Robert L.; and Turner, John J. P., to Du Pont de Nemours, E. I., and Company. Indigo-dyeable polyester fibers. 4,335,185, Cl. 428-361.000.

Aerodyne Research, Inc.: *See*—
Bien, Fritz; and Camac, Morton, 4,334,777, Cl. 356-349.000.

Agence National de Valorisation de la Recherche (ANVAR): *See*—
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.

Agence Nationale de Valorisation de la Recherche (A.N.V.A.R.): *See*—
Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, 4,335,001, Cl. 210-708.000.

Agence Nationale de Valorisation de la Recherche (ANVAR): *See*—
Rios, Gilbert M.; Gibert, Henri; and Baxerres, Jean-Louis, 4,334,998, Cl. 210-617.000.

AGFA-Gevaert AG: *See*—
Wilke, Werner; Gref, Hans; and Frenken, Hans, 4,334,884, Cl. 23-293.00R.

Air Industrie, Societe Anonyme: *See*—
Tholome, Roger, 4,335,342, Cl. 318-627.000.

Air Products and Chemicals, Inc.: *See*—
Beitchman, Burton D.; and Zaluska, Philip J., 4,335,228, Cl. 525-528.000.
Dalton, Augustine I., Jr.; and Skinner, Ronald W., 4,335,092, Cl. 423-584.000.
Shay, Robert H.; and Ellison, Thomas L., 4,334,938, Cl. 148-16.700.

Airco, Inc.: *See*—
Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., 4,334,629, Cl. 220-252.000.

Aisaka, Kazuo: *See*—
Terada, Osamu; and Aisaka, Kazuo, 4,335,213, Cl. 435-190.000.

Aisin Seiki Kabushiki Kaisha: *See*—
Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, 4,334,837, Cl. 417-393.000.
Tsuchikawa, Shunzo; and Hayashi, Masaharu, 4,334,824, Cl. 416-132.00R.

Aisin-Waker Kabushiki Kaisha: *See*—
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.

Akabane, Yukihiro: *See*—
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.

Akashi, Keiichi. Chain mechanism. 4,334,609, Cl. 198-797.000.

Akiyama, Yoshinori; and Ueno, Shyichi, to Nissan Motor Company, Ltd. Seat for vehicle. 4,334,709, Cl. 297-284.000.

Aktiebolaget Bofors: *See*—
Mattson, Kjell, 4,334,657, Cl. 244-3.280.

Akzo N.V.: *See*—
Goolkate, Jannes J., 4,334,936, Cl. 148-6.15R.

Akzona Incorporated: *See*—
Frank, Dieter; and Metcalfe, Lincoln D., 4,334,887, Cl. 23-313.00R.
Kolczynski, James R.; and Schultz, Gerald A., 4,335,230, Cl. 526-228.000.
Warren, Elbert K.; and Porter, William D., 4,334,654, Cl. 242-147.00R.

Albert, Albert F. Reciprocating rotary engine. 4,334,506, Cl. 123-55.0AA.

Alcan Research and Development Limited: *See*—
Morris, Larry R., 4,334,935, Cl. 148-2.000.

Alder, Hanspeter: *See*—
Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., 4,334,898, Cl. 55-269.000.

Alegre, Adolfo P.; Guidote, Armando E.; and Puyat, Alfonso G. Multifuel vapor charge carburetion system and device therefor. 4,335,060, Cl. 261-23.00R.

Alekhin, Stanislav A.: *See*—
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Brockwell, Ian P.; and Martensson, Karl J. G., 4,334,465, Cl. 99-454.000.

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Bladh, Per V. H., 4,335,146, Cl. 426-231.000.

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Hemery, Andre, 4,335,068, Cl. 264-245.000.

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Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., 4,335,223, Cl. 525-179.000.

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Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., 4,335,103, Cl. 424-59.000.

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Sulmont, Benoit; and Hudault, Gerard, 4,335,064, Cl. 264-30.000.

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Haque, Yusuf A., 4,335,355, Cl. 330-253.000.

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Ayes, Adolfo V.; and Jones, John A., 4,334,901, Cl. 55-487.000.

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Hill, Loran R.; and Titcomb, Steven E., 4,334,544, Cl. 128-664.000.
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Scheingold, William S.; and Youngfleish, Frank C., 4,334,727, Cl. 339-17.0CF.
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Hagopian, John G., 4,334,396, Cl. 52-522.000.
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Brady, Jack D.; and Graves, Kenny M., 4,334,897, Cl. 55-257.0PV.
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Przybylinski, Phillip; Patil, Babgaunda A.; and Anderson, Gerald B., 4,334,481, Cl. 105-248.000.
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Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, 4,334,969, Cl. 204-158.00R.
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Saito, Masao; Aoya, Hiroshi; and Yoshida, Naruhito, 4,334,761, Cl. 355-3.00R.
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Field, Peter, 4,334,446, Cl. 82-36.00R.
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Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, 4,335,407, Cl. 358-284.000.
ARBED S.A.: *See*—
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.
Arendt, Henry P., to Otis Engineering Corporation. Balanced area safety valve. 4,334,581, Cl. 166-324.000.
Argoudelis, Alexander D.; Marshall, Vincent P.; and Johnson, Leroy E., to Upjohn Company, The. Paulomycin A and B and preparation thereof. 4,335,108, Cl. 424-117.000.
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Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,335,204, Cl. 435-23.000.
Ariga, Kazuo: *See*—
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Armour, John S.; and Watson, Peter M. F., to United Kingdom of Great Britain and Northern Ireland, The Minister of Transport in Her Britannic Majesty's Government of the. Friction controller. 4,334,602, Cl. 192-103.00F.
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Armstrong, Lee R., to RCA Corporation. Testing the condition of a turbocharger. 4,334,427, Cl. 73-118.000.
Armstrong, Thomas R., to Paradyne Corporation. Dual multipoint data transmission system modem. 4,335,464, Cl. 375-43.000.
Arthur, James C.; and Thieman, Graham F., to Arvin Industries, Inc. Tube-to-plate connection. 4,334,703, Cl. 285-222.000.
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Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.
Asai, Yoshiyuki; Shimada, Masao; and Soda, Kenji, to Mitsui Toatsu Chemicals, Inc. Process for preparation of L-tryptophan by enzyme. 4,335,209, Cl. 435-108.000.
Asakura, Toshimitsu; and Noda, Azusa, to Honda Giken Kogyo Kabushiki Kaisha. Two-wheeled motorcycle with combined frame and cowling structure. 4,334,589, Cl. 180-219.000.
Asaumi, Hiroshi; Kubota, Kazuo; Yokoo, Hisanori; and Yamamoto, Mitsuo, to Nippon Asbestos Co., Ltd. Method for producing asbestos free machinable calcium silicate high heat-resistant material. 4,334,931, Cl. 106-120.000.
Aschenbach, Louis F.; and Pusatcioglu, Selami Y., to Eaton Corporation. Lever seal for miniature sealed toggle switch. 4,335,287, Cl. 200-302.000.
Aschwanden, Felix, to RCA Corporation. Triax safety circuit. 4,335,412, Cl. 361-50.000.
Ashby, Walter. Walking buggy. 4,334,695, Cl. 280-228.000.
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Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.
ASMO Co., Ltd.: *See*—
Hara, Takanori; and Shimamura, Yoshihiro, 4,335,340, Cl. 318-282.000.
Astro Research Corporation: *See*—
Hedgepeth, John M.; Samuels, Ronald L.; and Stammreich, John, 4,334,391, Cl. 52-108.000.
Atlantic Richfield Company: *See*—
Holloway, Richard L.; Miller, John A.; and Winters, Jerald E., 4,334,981, Cl. 208-131.000.
Lordi, Frank E.; and Francis, Peter S., 4,335,037, Cl. 524-504.000.
Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, 4,335,258, Cl. 562-599.000.
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, to Dainippon Screen Seizo Kabushiki Kaisha. Sharpness emphasizing method and machine used in a picture reproducing machine. 4,335,407, Cl. 358-284.000.
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, to Honda Giken Kogyo Kabushiki Kaisha. Fuel injection system for an internal combustion engine. 4,334,511, Cl. 123-454.000.
Atwood Oceanics, Inc.: *See*—
Magill, James M., 4,334,584, Cl. 175-5.000.
Audesse, Emery G.: *See*—
Broadt, David R.; and Audesse, Emery G., 4,334,856, Cl. 431-359.000.
Aufderheide, Maurice B.; and Daniel, Sam M., to Motorola Inc. Digital scaling apparatus. 4,335,372, Cl. 340-347.0DD.
Augustine, Leo. Tire traction device. 4,334,566, Cl. 152-208.000.
Aultz, Daniel E.: *See*—
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Aurell, Leif E.: *See*—
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Farrington, Alan; and Nelson, Peter F., 4,334,956, Cl. 162-30.110.
Automatik Apparate-Maschinenbau H. Hench GmbH: *See*—
Blach, Josef A., 4,334,785, Cl. 366-79.000.
Automation Gages, Inc.: *See*—
Polidor, Edward C., 4,334,717, Cl. 308-6.00R.
Autoslug Stakupress GmbH & Co.: *See*—
Krautz, Kurt; and Ender, Erhard, 4,334,341, Cl. 24-230.0AT.
Axelrod, Sydney; Brenner, Walter; and Rugg, Barry A. Wear reducer. 4,334,477, Cl. 102-435.000.
Axford, John G., to International Business Machines Corporation. Cathode ray tube printing apparatus and method. 4,335,390, Cl. 346-158.000.
Ayers, Richard A. Sound reproduction system. 4,335,274, Cl. 179-1.00F.
Ayes, Adolfo V.; and Jones, John A., to American Optical Corporation. Respirator cartridge. 4,334,901, Cl. 55-487.000.
Aziende Colori Nazionali Affini ACNA S.p.A.: *See*—
De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, 4,335,246, Cl. 546-309.000.
Azuma, Masaaki: *See*—
Somemiya, Akiyoshi; Miyashita, Shunitsu; and Azuma, Masaaki, 4,335,233, Cl. 528-211.000.
Baass, Allen J. Artificial reef construction. 4,334,499, Cl. 119-3.000.
Bacciarelli, Sergio: *See*—
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Bachmann, Robert: *See—*
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Back, Gunter; and Schon, Klaus-Peter, to Hoechst Aktiengesellschaft. Mechanism for feeding and transporting printing plates. 4,334,472, Cl. 101-382.0MV.
Backe, Soren B., to American Can Company. Synchronous oscillator demodulator system. 4,335,442, Cl. 364-608.000.
Backx, Leo J. J.: *See—*
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,335,125, Cl. 424-250.000.
Badertscher, E. Gerhard: *See—*
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Bahia, Hardev S., to Courtaulds Limited. Process for making textured yarn. 4,334,401, Cl. 57-6.000.
Bain, Brian M.: *See—*
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Baker, Eugene E.; and Carter, Ernest E., Jr., to Halliburton Services. Method of cementing from a floating vessel. 4,334,582, Cl. 166-355.000.
Baker, James F.; and Chalecki, Bernard W., Jr., to Sterling Drug Inc. Amrinone-N-glucuronide; salts and cardiotonic use thereof. 4,335,131, Cl. 424-263.000.
Baker, Robert G.; and Ramazzotti, Dario J., to Nordson Corporation. Extrusion nozzle assembly. 4,334,637, Cl. 222-146.00H.
Bakhir, Vitold M.: *See—*
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Baldock, K. Paul; and Smith, J. Craig, Jr., to John Fluke Mfg. Co., Inc. Simulated ohms generation method and apparatus for calibrating resistance type measuring instruments. 4,335,349, Cl. 324-62.000.
Baldwin-Korthe Web Controls, Inc.: *See—*
Glanz, Richard; and Chang, Sun C., 4,335,316, Cl. 250-572.000.
Balinth, Ivan J., to Johnson & Johnson Products Inc. Pressure-sensitive adhesive compositions having high shear and low peel resistance. 4,335,026, Cl. 524-271.000.
Ballester, Jose F. Cover and container assembly. 4,334,631, Cl. 220-306.000.
Ballweber, Edward G., to Nalco Chemical Company. Adiabatic polymerization of acrylamide in the presence of sodium sulfate decahydrate. 4,335,237, Cl. 526-234.000.
Baluha, Gerald F.; and Flanagan, Bernard E., to Meyers, Fred W. Production of conveyor support bars for paper making machinery. 4,334,958, Cl. 162-352.000.
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, to Uniroyal, Inc. Method of stabilizing lubricating fluids. 4,335,006, Cl. 252-49.700.
Banyu Pharmaceutical Co., Ltd.: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.
Barabash, Martin J.: *See—*
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Baricevic, John, to Black & Decker Inc. Safety braking apparatus for a portable chain saw. 4,334,357, Cl. 30-381.000.
Barker, Graham; Safrin, Leopold; and Barabash, Martin J., to Witco Chemical Corporation. Process for the preparation of synthetic detergent bars, and products produced thereby. 4,335,025, Cl. 252-550.000.
Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., to Almay, Inc. Multiphase cosmetic composition. 4,335,103, Cl. 424-59.000.
Barker, Robert C.: *See—*
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Barkow, William H.: *See—*
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Barlow, Henry A. Mechanical devices forming an engine. 4,334,841, Cl. 418-38.000.
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., to Sunmark, Inc. Apparatus for producing a gasified fusible sugar composition. 4,334,934, Cl. 127-9.000.
Barnes, Ulpiano. Compressed gas operated turbine. 4,334,407, Cl. 60-407.000.
Barnett, Jack W.; and Sawyer, Roy D., to Nalco Chemical Company. Overhead corrosion simulator. 4,335,072, Cl. 422-53.000.
Barozzi, Gian P.; and Horeschi, Giancarlo, to Xelavis S.A. Device for controlling the typing action of a single type carrying element for typewriters. 4,334,791, Cl. 400-166.000.
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Battelle Development Corporation: *See—*
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Bauer, Russell H.; and Heidkamp, Madeleine, to United States of America, Navy. Method for correcting navigation errors due to water currents. 4,335,433, Cl. 364-443.000.
Baumann, Hans-Peter, to Sandoz Ltd. Quaternized polyamines. 4,335,259, Cl. 564-290.000.
Baumann, John A., to PPG Industries, Inc. Bonded needled fiber glass thermoplastic reinforced mats. 4,335,176, Cl. 428-228.000.
Baumann, Kurt; Kusche, Peter; and Redecker, Reinhard, to Postalia GmbH. Electronically controlled franking machine. 4,335,434, Cl. 364-464.000.
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Baxerres, Jean-Louis: *See—*
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Bayer Aktiengesellschaft: *See—*
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von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, 4,334,992, Cl. 210-241.000.
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BBC Brown, Boveri & Company, Limited: *See—*
Smitka, Artur; and Rabe, Josef, 4,334,857, Cl. 432-3.000.
Beach, Sidney C.; and Frisby, C. Richard, to McGean Chemical Company, Inc. Method of copper plating gravure cylinders. 4,334,966, Cl. 204-25.000.
Beato, Fernando J. Combination support surface and carrier for elongated equipment. 4,334,612, Cl. 206-314.000.
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Beckman Instruments, Inc.: *See—*
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Becton Dickinson & Company: *See—*
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Bedding, Robyn A., to Commonwealth Scientific and Industrial Research. Assemblage for rearing nematodes. 4,334,498, Cl. 119-1.000.
Beecher, Jonathan. Tone improving device for a stringed musical instrument. 4,334,455, Cl. 84-302.000.
Beede, Charles H.; and Zirnite, Richard N., to Johnson & Johnson. Bandage carrying ion-leachable cement compositions. 4,335,158, Cl. 427-2.000.
Beede, Earl R. Baffles for septic tank ports. 4,334,991, Cl. 210-232.000.
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, to Carl Hurth Maschinen- und Zahnradfabrik GmbH & Co. Gear deburring apparatus and method. 4,334,810, Cl. 409-9.000.
Behrenz, Wolfgang: *See—*
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Beier, William C.; and Hodder, James J., to Rohm and Haas Company. Process for producing leather. 4,334,876, Cl. 8-94.19C.
Beitchman, Burton D.; and Zaluska, Philip J., to Air Products and Chemicals, Inc. Isocyanate blocked imidazoles and imidazolines for epoxy powder coating. 4,335,228, Cl. 525-528.000.
Belavich, Joseph E.: *See—*
Bostic, John S., 4,335,377, Cl. 340-573.000.
Beljanski, Mirko. Polyribonucleotides capable of promoting the genesis of leucocytes and blood platelets. 4,335,239, Cl. 536-27.000.
Belko, Raymond P., to Boeing Company, The. Honeycomb structure end closure. 4,335,174, Cl. 428-73.000.
Bell Telephone Laboratories, Incorporated: *See—*
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Belohlavek, James F. Thermostatic control for electric roof heating cable. 4,335,299, Cl. 219-510.000.
Bender, Ruediger F.; and van Veersen, Gerardus J., to Emery Industries, Inc. Rubber compositions and method of vulcanizing same in ultrahigh-frequency field. 4,335,227, Cl. 525-333.000.

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Portolese, Larry A., 4,334,598, Cl. 188-73.440.
Ritsema, Irving R.; and Woo, Ji Y., 4,334,599, Cl. 188-73.450.

Benjamin, Robert E.; and Edging, Thomas E., to Stauffer Chemical Company. Method for preparing a baked product containing alkali metal aluminum phosphate. 4,335,154, Cl. 426-551.000.

Benson, Robert F., to Carey Canada Inc. Method for leaching magnesium from magnesium hydroxide-containing composition. 4,335,083, Cl. 423-167.000.

Benuzzi, Gino, to Giben Impianti S.p.A. Sawing machines. 4,334,450, Cl. 83-471.200.

Berfield, Robert C.: *See—*
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.

Bergin, Paul F. Hatch cover. 4,334,630, Cl. 220-300.000.

Bergstrom, Carl-Ingvar A., to AB Volvo. Rear wheel mounting for motor vehicles with a rigid rear axle. 4,334,696, Cl. 280-725.000.

Berkman, Samuel; and Metzl, Robert, to RCA Corporation. Method of and apparatus for growing crystal ribbon. 4,334,948, Cl. 156-608.000.

Bernas, Bedrich. Liquid and vapor-tight vessel for performing decomposition reactions. 4,335,074, Cl. 422-102.000.

Bernhardt, Gunther; Petersen, Egon-Norbert; and Daum, Gerhard, to Dynamit Nobel Aktiengesellschaft. Method of preparing substituted benzaldehydes. 4,335,052, Cl. 260-465.00R.

Berry, Fred M., to Kustom Electronics, Inc. Method and apparatus for digitally determining the speed of a target vehicle while the radar platform vehicle is in motion. 4,335,383, Cl. 343-8.000.

Bertus, Brent J.; and McKay, Dwight L., to Phillips Petroleum Company. Hydrocarbon cracking process using a catalyst containing germanium. 4,334,979, Cl. 208-114.000.

Bestobell Mobrey Limited: *See—*
West, Norman, 4,335,285, Cl. 200-84.00C.

Bettcher Industries, Inc.: *See—*
Bettcher, Louis A., 4,334,451, Cl. 83-703.000.

Bettcher, Louis A., to Bettcher Industries, Inc. Slicing apparatus having rotary magazine. 4,334,451, Cl. 83-703.000.

Beyerle, Rudi: *See—*
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.

BFG Glassgroup: *See—*
Duchateau, Jacques; and Van den Bossche, Christien, 4,334,908, Cl. 71-52.000.

Bien, Fritz; and Camac, Morton, to Aerodyne Research, Inc. Method of monitoring motion. 4,334,777, Cl. 356-349.000.

Biernath, Siegfried, to Klockner-Humboldt-Deutz AG. Connecting conduit arrangement. 4,334,512, Cl. 123-469.000.

Bill, Robert C.; and Sovey, James S., to United States of America, National Aeronautics and Space Administration. Thermal barrier coating system having improved adhesion. 4,335,190, Cl. 428-623.000.

Biondetti, Mario, to Escher Wyss Ltd. Controlled deflection roll. 4,334,344, Cl. 29-116.0AD.

Bird Machine Company, Inc.: *See—*
Taylor, Edward S., 4,334,647, Cl. 233-7.000.

Blach, Josef A., to Automatik Apparate-Maschinenbau H. Hench GmbH. Shaft for working material on machines for working materials of solid, liquid, plastic and/or highly viscous consistency. 4,334,785, Cl. 366-79.000.

Black & Decker Inc.: *See—*
Baricevic, John, 4,334,357, Cl. 30-381.000.

Blackburn, David. Expandible devices for internally gripping cores or the like. 4,334,652, Cl. 242-72.00R.

Bladh, Per V. H., to Alfa-Laval, Inc. Processing fish raw material. 4,335,146, Cl. 426-231.000.

Blake, Jon R.; Knutson, Richard K.; and Strommer, Deon L., to General Mills, Inc. Composition for aerated frozen desserts containing fruit puree and method of preparation. 4,335,155, Cl. 426-565.000.

Blanchard, Jean; and Verry, Monique, to Omnium Financier Aquitaine pour l'Hygiene et la Sante (Sanoli). Process for the treatment of patients suffering from drepanocytosis. 4,335,128, Cl. 424-256.000.

Blanchard, Robert, to HR Textron Inc. Diverter valve. 4,334,552, Cl. 137-625.480.

Blanchut & Bertrand S.A.: *See—*
Eberlin, Philippe; and Rossi, Mario, 4,335,452, Cl. 367-134.000.

Blaschke, Felix, to Siemens Aktiengesellschaft. Multiple pulse-width multiplier. 4,335,444, Cl. 364-815.000.

Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, to Ciba-Geigy Corporation. Process for the preparation of alkenylbenzenecarboxylic acid derivatives and alkenylnaphthalenecarboxylic acid derivatives. 4,335,054, Cl. 260-465.00G.

Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, to Ciba-Geigy Corporation. Process for the preparation of alkenylbenzene derivatives or alkenylnaphthalene derivatives. 4,335,055, Cl. 260-465.00K.

Blizzard, Roy L.: *See—*
Davis, Robert D.; and Blizzard, Roy L., 4,335,080, Cl. 422-244.000.

Block and Company, Inc.: *See—*
Block, Mitchell L., 4,334,620, Cl. 211-13.000.

Block, Mitchell L., to Block and Company, Inc. Key storage rack. 4,334,620, Cl. 211-13.000.

Bloodworth, Dennis A., Jr.: *See—*
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., 4,335,323, Cl. 310-40.00R.

Board of Trustees, Michigan State University: *See—*
Cornwell, David A., 4,334,999, Cl. 210-638.000.

Bob's Casing Crews: *See—*
Carstensen, Kenneth J.; and Staudt, John J., III, 4,334,444, Cl. 81-57.180.

BOC Limited: *See—*
Rennie, Andrew L.; and Davis, Alexander, 4,334,574, Cl. 164-4.100.

Bock, Marvin D., to RCA Corporation. Apparatus for molding a recorded disc. 4,334,849, Cl. 425-290.000.

Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., to International Flavors & Fragrances Inc. Mixture of aliphatic C_{10} branched olefin epoxides and use thereof in augmenting or enhancing the aroma of perfumes and/or articles. 4,335,009, Cl. 252-187.270.

Boehringer Mannheim GmbH: *See—*
Muller, Werner; and Bunemann, Hans, 4,335,226, Cl. 525-281.000.

Boeing Company, The: *See—*
Belko, Raymond P., 4,335,174, Cl. 428-73.000.
Mickelsen, Reid A.; and Chen, Wen S., 4,335,266, Cl. 136-260.000.

Boell, Walter, to BASF Aktiengesellschaft. 4-α-Amino-arylmethyl-6-methyl-1,3-dihydro-furo[3,4-c]pyridin-7-ols. 4,335,241, Cl. 544-127.000.

Bogsch, Erik: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.

Bohm, Siegfried: *See—*
Buysch, Hans-Josef; Krimm, Heinrich; and Bohm, Siegfried, 4,335,051, Cl. 260-463.000.

Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., to International Business Machines Corporation. Printer system having parity checking of print hammers using software control. 4,335,460, Cl. 371-49.000.

Bolduc, Leo J. Table with elevator type lazy susan. 4,334,482, Cl. 108-95.000.

Bolen, Charles E.: *See—*
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,335,186, Cl. 428-375.000.

Bond, Robert, to Dunlop Limited. Tires. 4,334,567, Cl. 152-209.00R.

Boniface, Jean-Paul; and Ponceblanc, Gilbert, to Societe Anonyme dite Compagnie Europeenne d'Accumulateurs. Apparatus for automatically feeding bushings into a press for moulding covers for storage batteries. 4,334,846, Cl. 425-126.00R.

Bonzack, Eugene P., to F. Jos. Lamb Company. Bearing arrangement for oscillating shafts. 4,334,436, Cl. 74-44.000.

Borle, Jean-Pierre. Dental obturation screw. 4,334,865, Cl. 433-221.000.

Born, Eberhard: *See—*
von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, 4,334,992, Cl. 210-241.000.

Bornengo, Mario; and Bacciarelli, Sergio, to Montedison S.p.A. Process for the preparation of N-di-n-propyl-2,6-dinitro-4-trifluoromethylaniline having a low content of nitrosamines. 4,335,260, Cl. 564-406.000.

Borovicka, David A., Sr.: *See—*
Ting, Vincent W.; Woo, James T. K.; and Borovicka, David A., Sr., 4,335,028, Cl. 524-504.000.

Bosch-Siemens Hausgerate GmbH: *See—*
Reichl, Ernst; and Marloth, Herbert, 4,334,531, Cl. 128-200.140.

Bostian, Charles D.: *See—*
Davis, Thomas R.; and Bostian, Charles D., 4,334,662, Cl. 248-237.000.

Bostic, John S., to Belavich, Joseph E. Medical alert alarm. 4,335,377, Cl. 340-573.000.

Boucraut, Frantz M. J., to Valton S.A. Methods of drying wet items of textile materials. 4,334,365, Cl. 34-8.000.

Bouiller, Jean G.; and Joubert, Raymond J. M., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "SNECMA". Device for attaching blades to a compressor rotor for a turbojet. 4,334,827, Cl. 416-220.00R.

Bouko, Jean: *See—*
Salvat, Francois; Bouko, Jean; and Le Foll, Jean, 4,335,387, Cl. 343-756.000.

Bowers, Douglas F., to Marconi Company Limited, The. Amplitude modulator using a carrier tube and a peaking tube. 4,335,363, Cl. 332-37.00R.

Bowes, Emmerson; and Pelrine, Bruce P., to Mobil Oil Corporation. Preparation of natural ferrierite hydrocracking catalyst and hydrocarbon conversion with catalyst. 4,335,019, Cl. 252-450.000.

Boyer, Keith: *See—*
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.

Bozarth, Gene A., to Shell Oil Company. Use of N-cyclopropyl-N'-(2-Fluorophenyl)urea as a selective herbicide. 4,334,916, Cl. 71-120.000.

Bracker AG: *See—*
Stutz, Emil, 4,334,402, Cl. 57-120.000.

Brady, Jack D.; and Graves, Kenny M., to Andersen 2000, Inc. Gas scrubbing apparatus. 4,334,897, Cl. 55-257.0PV.

Brand, Konrad; and Franz, Dieter, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Method of producing a molded composite foam body provided with a cover layer and the resultant product. 4,335,182, Cl. 428-319.300.

Brandenberger, Kurt; Feichtinger, Alfred; and Fischer, Werner, to Swiss Aluminium Ltd. Process for treating partially desulfurized coke. 4,334,960, Cl. 201-17.000.

Brantingham, George L., to Texas Instruments Incorporated. Synchronous method and apparatus for speech synthesis circuit. 4,335,275, Cl. 179-1.0SM.

Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Elas-

tomeric damping device especially for the neck of helicopter wing blades. 4,334,825, Cl. 416-134.00A.

Bredow, Walter, to C. Behrens AG. Machine tool with a laser beam cutting device. 4,335,296, Cl. 219-121.0LG.

Breecher, Jerry D.; and Truax, Bruce E., to Western Electric Co., Inc. Method for dynamically determining the horizontal motion and twist of a microwave tower. 4,334,775, Cl. 356-152.000.

Brenner, Walter: *See—*
Axelrod, Sydney; Brenner, Walter; and Rugg, Barry A., 4,334,477, Cl. 102-435.000.

Breslow, Jeffrey D.: *See—*
Rogers, Gregory B.; Wildman, John R.; and Breslow, Jeffrey D., 4,334,384, Cl. 46-39.000.

Breton, Jean-Paul R. H.; Thomassin, Pierre C.; and Villeneuve, Bernard E., to Bureau de Recherches Geologiques et Minieres. Method and apparatus for locating the position of a drill core sample. 4,334,429, Cl. 73-151.000.

Brickner, Joseph L. Electronic safety device. 4,335,339, Cl. 318-282.000.

Bricmont & Associates, Inc.: *See—*
Bricmont, Francis H., 4,334,861, Cl. 432-30.000.

Bricmont, Francis H., to Bricmont & Associates, Inc. Method and apparatus for generating a hot air blast. 4,334,861, Cl. 432-30.000.

Brink, Gerhard: *See—*
Konrath, Karl; and Brink, Gerhard, 4,334,514, Cl. 123-502.000.

Brink's Locking Systems, Inc.: *See—*
Kambic, Raymond V., 4,334,388, Cl. 49-14.000.

Bristol-Myers Company: *See—*
Kaplan, Murray A.; and Granatek, Alphonse P., 4,335,244, Cl. 546-106.000.

British Broadcasting Corporation: *See—*
Clarke, Christopher K. P., 4,335,395, Cl. 358-11.000.

Brittin, Willard D. Desk mounted chair stop. 4,334,722, Cl. 312-194.000.

Broad, Bernard H., to English Clays Lovering Pochin & Co. Limited. Tube pressure filters. 4,334,996, Cl. 210-350.000.

Broadhurst, Thomas E., to Exxon Research & Engineering Co. Dewaxing and wax filterability by reducing scraper speed in scraped surface chilling units. 4,334,978, Cl. 208-33.000.

Broadt, David R.; and Audesse, Emery G., to GTE Products Corporation. Photoflash array with selective pairing of lamps. 4,334,856, Cl. 431-359.000.

Brockwell, Ian P.; and Martensson, Karl J. G., to Alfa-Laval Cheddar Systems Limited. Method and apparatus for processing and packaging cheese. 4,334,465, Cl. 99-454.000.

Brodzinski, John J.: *See—*
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., 4,334,546, Cl. 132-88.500.

Brogan, Thomas R., to Roldiva, Inc. Method for reducing NO_x emissions from combustion processes. 4,335,084, Cl. 423-235.000.

Brooks, Herbert; and Waite, Frederick A., to Imperial Chemical Industries Limited. Modification of liquid hydrocarbons. 4,334,891, Cl. 44-62.000.

Brown, Alfred L.: *See—*
Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., 4,334,615, Cl. 206-447.000.

Brown, Arthur K.; Hendrickson, Richard T.; and Ewald, Jerome T., to Bendix Corporation, The. Constant output fluid pump. 4,334,832, Cl. 417-218.000.

Brown, Boveri & Cie Aktiengesellschaft: *See—*
Reiter, Karl, 4,335,392, Cl. 357-75.000.

Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., to Decatur Electronics, Inc. Traffic radar system. 4,335,382, Cl. 343-8.000.

Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., to Tennant Company. Scrubber with hydraulic squeegee lift. 4,334,335, Cl. 15-319.000.

Brown, Neil L.: *See—*
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.

Brunel, Paul H. Ski-shoe. 4,334,369, Cl. 36-124.000.

Brunswick Corporation: *See—*
Scheie, Carl E., 4,334,681, Cl. 273-30.000.

Bryan, Carl N. Combined flat sheet display device and rolled sheet holder. 4,334,373, Cl. 40-19.000.

Buchs, Wolfgang: *See—*
Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, 4,334,825, Cl. 416-134.00A.

Bud Antle Inc.: *See—*
Plumb, Bruce E., 4,334,590, Cl. 180-247.000.

Budd Company, The: *See—*
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., 4,334,563, Cl. 145-2.00R.

Budde, Volker: *See—*
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, 4,334,699, Cl. 280-731.000.

Buescher, Eugene J., to O'Meara, William R. Stationery having snap-open envelope with remailable portion. 4,334,618, Cl. 206-623.000.

Buhrer, Carl F.; and Feuersanger, Alfred E., to GTE Laboratories Incorporated. Vacuum-tight assembly. 4,334,628, Cl. 220-2.10R.

Bull, Glen L.; McDonald, Wesley E.; and Edgerton, Milton T., to University of Virginia, The. Apparatus for non-invasive measurement and display nasalization in human speech. 4,335,276, Cl. 179-1.0SP.

Bunemann, Hans: *See—*
Muller, Werner; and Bunemann, Hans, 4,335,226, Cl. 525-281.000.

Bunker Ramo Corporation: *See—*
Colwell, William L.; and Schmelzle, Carl W., 4,334,730, Cl. 339-130.00C.
Holt, Harley R., 4,334,353, Cl. 29-753.000.
Roos, John C., 4,335,384, Cl. 343-114.000.

Burch, Darrel W.; and Wojciehowski, James P., to Garrett Corporation, The. Pneumatic starter overtemperature control. 4,334,549, Cl. 137-72.000.

Burcombe, Douglas A.; and Wills, Jean M., to Burcombe, Douglas Arthur. Soiless gardening system. 4,334,386, Cl. 47-62.000.

Burcombe, Douglas Arthur: *See—*
Burcombe, Douglas A.; and Wills, Jean M., 4,334,386, Cl. 47-62.000.

Bureau de Recherches Geologiques et Minieres: *See—*
Breton, Jean-Paul R. H.; Thomassin, Pierre C.; and Villeneuve, Bernard E., 4,334,429, Cl. 73-151.000.

Burei, Giovanni: *See—*
De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, 4,335,246, Cl. 546-309.000.

Burnham, Robert D.: *See—*
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., 4,335,461, Cl. 372-45.000.

Burns, Anthony G.; and Spector, George. Pencil marking jig. 4,334,360, Cl. 33-42.000.

Burroughs Wellcome Co.: *See—*
Watts, Ian S.; and Marsden, Peter H., 4,335,139, Cl. 424-285.000.

Burrows, Michael J., to Marconi Company Limited, The. Radar signal simulator. 4,334,866, Cl. 434-2.000.

Burton, James W.: *See—*
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Bushman, Ted E., to International Minerals & Chemical Corp. TL-78 Explosive composition. 4,334,939, Cl. 149-21.000.

Butchko, Joseph J. Telephone construction. 4,335,280, Cl. 179-90.00R.

Buth, Randy L.; and Essig, Robert A., to McQuay-Perfex Inc. Airflow limiter and measurement device. 4,334,648, Cl. 236-49.000.

Butler, Donald, to Stained Glass Overlay, Inc. Simulated stained and leaded glass windows. 4,335,170, Cl. 428-38.000.

Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., to Goodyear Tire & Rubber Company, The. Package for compounding rubber and compounded rubber. 4,334,615, Cl. 206-447.000.

Butler, William J., to Vermillion Equipment & Supply Co., Inc. Discharge cone assembly for a rotary grinding mill or the like. 4,334,626, Cl. 241-171.000.

Buysch, Hans-Josef; Krimm, Heinrich; and Bohm, Siegfried, to Bayer Aktiengesellschaft. Process for the preparation of dimethyl carbonate. 4,335,051, Cl. 260-463.000.

Byers, Thomas L. Diffusion transfer sheet registration. 4,334,757, Cl. 354-301.000.

Bykova, Irina G.: *See—*
Efimov, Vladimir M.; Naumova, Tatyana N.; Bykova, Irina G.; and Stroganova, Larisa A., 4,335,088, Cl. 423-420.000.

Bzik, John W.: *See—*
Zuckerman, Joseph L.; and Bzik, John W., 4,335,034, Cl. 524-423.000.

C. Behrens AG: *See—*
Bredow, Walter, 4,335,296, Cl. 219-121.0LG.

C. W. Zumbiel Co., The: *See—*
Hauser, Donald P., 4,334,644, Cl. 225-43.000.

Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., to Fisons Limited. 5-(2-Hydroxypropoxy)-8-propyl-4H-1-benzopyran-4-one-2-carboxylic acid. 4,335,048, Cl. 549-402.000.

Caldecourt, Leonard R.; Evans, Gordon V.; and Parsons, Tony V., to United Kingdom Atomic Energy Authority. Inspection of underwater structures. 4,335,308, Cl. 250-358.00R.

California Institute of Technology: *See—*
Corcoran, William H.; Vasilakos, Nicholas P.; and Lawson, Daniel D., 4,334,888, Cl. 44-1.0SR.

Call, James. Method for collecting market survey data from universal product type coded items. 4,335,303, Cl. 235-463.000.

Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., to Standard Oil Company. Processing acrylonitrile waste gas. 4,335,056, Cl. 260-465.300.

Calteau, Jean-Paul: *See—*
Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, 4,335,001, Cl. 210-708.000.

Camac, Morton: *See—*
Bien, Fritz; and Camac, Morton, 4,334,777, Cl. 356-349.000.

Campbell, Henry J., to Harris Corporation. Method of solder reflow assembly. 4,334,646, Cl. 228-180.00A.

Campbell, James B. Disc game apparatus. 4,334,683, Cl. 273-126.00R.

Canada, Atomic Energy of, Limited: *See—*
Sridhar, T. Sampat, 4,334,953, Cl. 159-11.00R.

Canadian Patents & Dev. Limited: *See—*
Domey, Jacques; and Rioux, Marc, 4,334,779, Cl. 356-358.000.

Cannon, Charles B.: *See—*
Mettersheimer, John H., Jr., 4,335,319, Cl. 290-54.000.

Canon Denshi Kabushiki Kaisha: *See—*
Shimada, Fumio; and Hashimoto, Teiji, 4,334,747, Cl. 354-147.000.

Canon Kabushiki Kaisha: *See—*
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.
Kanoto, Masanobu, 4,334,946, Cl. 156-352.000.

Nishigaki, Yuji; and Kawashima, Hirokuni, 4,335,195, Cl. 430-94.000.
Saito, Syuichiro; Date, Nobuaki; Suzuki, Ryoichi; and Sugiura, Yoji, 4,334,749, Cl. 354-234.000.
Sakane, Toshio; and Tsunekawa, Tokuichi, 4,335,405, Cl. 358-213.000.
Shimada, Fumio; and Hashimoto, Teiji, 4,334,747, Cl. 354-147.000.
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

Capella Inc.: *See*—
Ergaver, Rayko, 4,335,168, Cl. 428-36.000.

Caraballo, Angel, to Eastman Kodak Company. Method and means for reducing undesirable effects of dirt particles on a flexible record device. 4,335,173, Cl. 428-65.000.

Carden, Douglas D.: *See*—
Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., 4,334,629, Cl. 220-252.000.

Cardinal Insulated Glass Co.: *See*—
Lizardo, Renato A.; and O'Shaughnessy, Roger D., 4,335,166, Cl. 428-34.000.

Carduck, Franz-Josef; Kloetzer, Dietrich; and Veldman, Gerard, to Deutsche Hefewerke GmbH. Preparation of porous active yeast granules. 4,335,144, Cl. 426-62.000.

Carey Canada Inc.: *See*—
Benson, Robert F., 4,335,083, Cl. 423-167.000.

Carey, Sam H., Jr. Animal control device. 4,334,503, Cl. 119-121.000.

Caris, Daniel D. Portable foldable hoist. 4,334,668, Cl. 254-8.00B.

Carl Freudenberg, Firma: *See*—
Holzer, Helmut; and von Arndt, Ernst M., 4,334,687, Cl. 277-151.000.

Carl Hurth Maschinen- und Zahnradfabrik GmbH & Co.: *See*—
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.

Carlson, Nancy W.; Westervelt, Dean C.; and Scala, Luciano C., to Westinghouse Electric Corp. Process for electrophoretically forming an imide coating on wire. 4,334,973, Cl. 204-181.00R.

Carre, Jean-Jacques; and Meynier, Guy, to Societe Anonyme D.B.A. Braking compensator dependent on the deceleration. 4,334,712, Cl. 303-24.00C.

Carsky, Milan: *See*—
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.

Carstensen, Kenneth J.; and Staudt, John J., III, to Bob's Casing Crews. Power tongs. 4,334,444, Cl. 81-57.180.

Carter, Ernest E., Jr.: *See*—
Baker, Eugene E.; and Carter, Ernest E., Jr., 4,334,582, Cl. 166-355.000.

Carter, Howard J.; and Staiger, William C., to Acurex Corporation. Article decelerating assembly and method. 4,334,603, Cl. 193-32.000.

Carter, Stephen B.: *See*—
Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., 4,335,115, Cl. 424-181.000.

Carty, Larry G.: *See*—
Sakowski, Walter J.; Carty, Larry G.; and Foster, Craig A., 4,335,090, Cl. 423-474.000.

Carver Manufacturing Incorporated: *See*—
Carver, Robert G.; and Steward, Clarence, 4,334,381, Cl. 43-42.290.

Carver, Robert G.; and Steward, Clarence, to Carver Manufacturing Incorporated. Fishhook and worm lure combination. 4,334,381, Cl. 43-42.290.

Casino Investment Limited: *See*—
Davies, Ronald C., 4,334,604, Cl. 194-100.00A.

Cassella Aktiengesellschaft: *See*—
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.

Castanis, George; and Castanis, Thaddeus T. Producing replicas of body parts. 4,335,067, Cl. 264-222.000.

Castanis, Thaddeus T.: *See*—
Castanis, George; and Castanis, Thaddeus T., 4,335,067, Cl. 264-222.000.

Catan, Jeanne: *See*—
Robbins, Anthony; Catan, Omero C.; and Catan, Jeanne, 4,334,685, Cl. 273-274.000.

Catan, Omero C.: *See*—
Robbins, Anthony; Catan, Omero C.; and Catan, Jeanne, 4,334,685, Cl. 273-274.000.

Caterpillar Mitsubishi Ltd.: *See*—
Tezuka, Toru; and Matsuda, Akira, 4,334,588, Cl. 180-68.00P.

Caterpillar Tractor Co.: *See*—
Hajek, Thomas J., II; and Lorimor, Larry W., 4,334,553, Cl. 137-625.660.
Hopkins, Michael F.; and Mayerchin, Alvin D., 4,334,415, Cl. 464-130.000.

Caubet, Jacques-Jean, to Centre Stephanois de Recherches Mecaniques Hydro-Mecanique et Frottement. Method for decorticating seeds. 4,335,151, Cl. 426-482.000.

Cavicchioli, Ugo: *See*—
Germano, Francesco; and Cavicchioli, Ugo, 4,334,362, Cl. 33-174.00L.

Centre Stephanois de Recherches Mecaniques Hydro-Mecanique et Frottement: *See*—
Caubet, Jacques-Jean, 4,335,151, Cl. 426-482.000.

Chalecki, Bernard W., Jr.: *See*—
Baker, James F.; and Chalecki, Bernard W., Jr., 4,335,131, Cl. 424-263.000.

Chalmers, Edward L., II; and Shugart, Wayne L., Sr., to Lange International S.A. Adjustable fastener for plastic ski boots. 4,334,368, Cl. 36-121.000.

Chambers, William J.; and Plambeck, Louis, Jr., to Du Pont de Nemours, E. I., and Company. Photoimaging process. 4,335,197, Cl. 430-271.000.

Champion International Corporation: *See*—
Thompson, Kenneth P., 4,334,942, Cl. 156-217.000.

Chan, Ka-Kong; and Pawson, Beverly A., to Hoffmann-La Roche Inc. Fluorinated polyenes. 4,335,248, Cl. 549-78.000.

Chandler, John E.; and Lenz, Robert W., to Exxon Research & Engineering Co. Crystalline co-polybenzyls preparation. 4,335,235, Cl. 528-397.000.

Chang, Sun C.: *See*—
Glanz, Richard; and Chang, Sun C., 4,335,316, Cl. 250-572.000.

Chase, Richard A.; Simpson, Danny E.; and Williams, David M., to Johnson & Johnson Baby Products Company. Infant development ring toy. 4,334,382, Cl. 46-1.00R.

Chedid, Louis: *See*—
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.

Chee, Tseng, to Elite Electrical Products Limited. Combined tape recording and playback apparatus and telephone answering apparatus controlled by pre-recorded signals. 4,335,278, Cl. 179-6.060.

Chemetics International Ltd.: *See*—
McFarland, John, 4,335,076, Cl. 422-171.000.

Chemische Werke Huels Aktiengesellschaft: *See*—
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, 4,335,018, Cl. 252-435.000.

Chemotronics International, Inc. Shareholders: *See*—
Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., 4,334,350, Cl. 29-611.000.

Chemplex Company: *See*—
Dombro, Robert A., 4,335,016, Cl. 252-429.00B.

Chen, Edward: *See*—
Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, 4,334,782, Cl. 356-406.000.

Chen, James T. C. Apparatus for probing semiconductor wafers. 4,335,350, Cl. 324-64.000.

Chen, Wen S.: *See*—
Mickelsen, Reid A.; and Chen, Wen S., 4,335,266, Cl. 136-260.000.

Cherkofsky, Saul C., to Du Pont de Nemours, E. I., and Company. Anti-inflammatory 4,5-diaryl-α-(polyfluoroalkyl)-1H-pyrrole-2-methanamines. 4,335,136, Cl. 424-274.000.

Chevron Research Company: *See*—
Aoyagi, Edward I., 4,335,133, Cl. 424-270.000.

Childers, Joseph R. Method of treating mites in poultry. 4,335,112, Cl. 424-177.000.

Childs, Warren L.; and Cronenwett, William T., to Cimarron Instruments, Inc. Electrosurgical generator control apparatus. 4,334,539, Cl. 128-303.140.

Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt.: *See*—
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Chlorine Engineers Corp.: *See*—
Hosaka, Hideaki; and Kuri, Setuya, 4,335,150, Cl. 426-465.000.

Cho-Pat, Inc.: *See*—
Gauvry, George R., 4,334,528, Cl. 128-80.00C.

Choay, Jean: *See*—
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.

Chow, Sen-Te; and Lin, Tsan H., to United States of America, Army. Adaptive post-filter for infrared scan converter. 4,335,400, Cl. 358-113.000.

Christensen, Burton G.; Leanza, William J.; and Wildonger, Kenneth J., to Merck & Co., Inc. Substituted N-methylene derivatives of thienamycin. 4,335,043, Cl. 260-245.20T.

Christiansen, Jens; and Schultheiss, Christoph. Method of producing an accellcrating electrons and ions under application of voltage and arrangements connected therewith. 4,335,465, Cl. 376-156.000.

Chrysler Corporation: *See*—
Hall, John F., 4,334,989, Cl. 210-114.000.

Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, to Mobil Oil Corporation. Method of preparation of composite zeolite catalysts. 4,335,020, Cl. 252-455.00Z.

Chubb Panorama Limited: *See*—
Jackson, Peter J., 4,334,532, Cl. 128-204.260.

Chung, Alfred: *See*—
Ryan, James W.; and Chung, Alfred, 4,335,041, Cl. 260-112.50R.

Chupp, John P., to Monsanto Company. N-(Alkoxymethyl)-2'-nitro-6'-substituted-2-haloacetanilides and their use as herbicides and plant growth regulants. 4,334,909, Cl. 71-76.000.

Ciba-Geigy AG: *See*—
Long, William E., 4,335,245, Cl. 546-288.000.

Ciba-Geigy Corporation: *See*—
Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,054, Cl. 260-465.00G.
Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,055, Cl. 260-465.00K.
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.
Fischer, Hanspeter; Thummel, Rudolph C.; and Wehrli, Rudolf, 4,335,118, Cl. 424-226.000.
Roueche, Armand, 4,334,932, Cl. 524-191.000.

Cieslak, Leonard K.: *See*—
Cieslak, Stanley; and Cieslak, Leonard K., 4,334,519, Cl. 126-204.000.

Cieslak, Stanley; and Cieslak, Leonard K. Portable heater for generating and circulating heat in wearing apparel. 4,334,519, Cl. 126-204.000.

Cimarron Instruments, Inc.: *See*—
Childs, Warren L.; and Cronenwett, William T., 4,334,539, Cl. 128-303.140.

Cipolli, Roberto: *See*—
De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, 4,335,246, Cl. 546-309.000.

Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, to Kabi AB. Easily split substrates for the quantification of proteases. 4,335,204, Cl. 435-23.000.

Clarion Co., Ltd.: *See*—
Tanaka, Kouichi; and Mori, Masaharu, 4,335,322, Cl. 307-542.000.
Yokota, Tadashi; Watanabe, Wataru; and Kondo, Makoto, 4,335,409, Cl. 360-96.600.

Clark, Gary A., to International Business Machines Corporation. Booklet preparation utilizing an electrophotographic apparatus. 4,334,765, Cl. 355-14.0SH.

Clarke, Christopher K. P., to British Broadcasting Corporation. Standards conversion of color television signals. 4,335,395, Cl. 358-11.000.

Clarke, Donald H.; Pomranky, George J.; and Schmidt, Donald L., to Dow Chemical Company, The. Process for reacting isocyanates in the presence of quaternary ammonium zwitterions. 4,335,219, Cl. 521-128.000.

Clausing, Don P., to Xerox Corporation. Precise center line registration of a substrate. 4,334,759, Cl. 355-3.0SH.

Clayborne, William J.: *See*—
Hauser, Hans; and Clayborne, William J., 4,334,719, Cl. 308-121.000.

Clayton, Charles R. Golf club bag. 4,334,564, Cl. 150-1.50C.

Clement, Mark W. P., to General Signal Corporation. Electronic interrupter. 4,335,418, Cl. 361-152.000.

Clifton, Kenneth C., to Harris Corporation. Delivery mechanism. 4,334,673, Cl. 271-65.000.

Clinton, Robert E. Support apparatus for prosthetic appliance. 4,334,527, Cl. 128-79.000.

Coca-Cola Company, The: *See*—
Davis, Johnnie G., 4,334,601, Cl. 190-44.000.
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.

Colechia, Edward A.: *See*—
Males, Robert E.; and Colechia, Edward A., 4,334,613, Cl. 206-340.000.

Coleman, Charles, to Emerson Electric Company. Timed dual comparator alarm. 4,335,378, Cl. 340-629.000.

Coleman Company, Inc., The: *See*—
Hefling, Dennis V., 4,334,462, Cl. 99-385.000.

Collette, John W.; and Tullock, Charles W., to Du Pont de Nemours, E. I., and Company. Elastomeric polypropylene. 4,335,225, Cl. 525-240.000.

Collins, Keith R., to Orewa Inc. Pharmaceutical compositions of sanguinaria galangal and zinc chloride. 4,335,110, Cl. 424-145.000.

Colln, Reimer; Sirrenberg, Wilhelm; Behrenz, Wolfgang; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. 1-Hydroxy-2,2,2-trichloroethane-thionophosphonic acid dimethyl esters as insecticide. 4,335,117, Cl. 424-217.000.

Colmar, Jack E. Movable web variable exhibitor. 4,334,372, Cl. 40-16.200.

Colombo, Donato; and Baldacci, Lapo. Mechanical telephone conversation time limiting device. 4,335,279, Cl. 179-7.10R.

Coltharp, David R., to United States of America, Navy. Warhead initiation system. 4,334,474, Cl. 102-206.000.

Colwell, William L.; and Schmelzle, Carl W., to Bunker Ramo Corporation. Insulated from ground bulkhead adapter. 4,334,730, Cl. 339-130.00C.

Combier, Henri; Prat, Gisele; and Pontagnier, Henri, to Laboratoires Sarget. Triterpenic saponin having pharmacological potency. 4,335,113, Cl. 424-180.000.

Commissariat a l'Energie Atomique: *See*—
Muller, Georges, 4,334,896, Cl. 55-96.000.
Robin, Marcel, 4,335,467, Cl. 376-285.000.

Commonwealth of Australia - Dept. of Health, The: *See*—
Gill, Robert W., 4,334,432, Cl. 73-602.000.

Commonwealth Scientific and Industrial Research: *See*—
Bedding, Robyn A., 4,334,498, Cl. 119-1.000.

Communications Technology Corporation: *See*—
Kund, August, 4,334,726, Cl. 339-14.00L.

Compagnie Francaise d'Etudes et de Construction "Technip": *See*—
Paradowski, Henri, 4,334,902, Cl. 62-9.000.

Compair Industrial Ltd.: *See*—
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Concannon, Thomas P., to Du Pont de Nemours, E. I., and Company. Aqueous dispersion of fluoropolymers in combination with epoxy-type film formers. 4,335,030, Cl. 523-408.000.

Coney, Charles H., to Eastman Kodak Company. Sequestering agents and compositions produced therefrom. 4,335,220, Cl. 523-414.000.

Conn, John L. Separable hinge. 4,334,338, Cl. 16-266.000.

Connell, Joseph A. Iceberg propulsion system. 4,334,873, Cl. 440-113.000.

Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L. Surface aerator impeller. 4,334,826, Cl. 416-185.000.

Connolly, Joseph J., Jr.; Redfern, Thomas P.; and Frederiksen, Thomas M., to National Semiconductor Corporation. Digital error correcting trimming in an analog to digital converter. 4,335,371, Cl. 340-347.0CC.

Connor, Peter J.; and Hagar, Donald K., to Mosser Industries, Inc. Sealing means for sliding gate valve. 4,334,550, Cl. 137-242.000.

Conoco Inc.: *See*—
Fair, Delbert W., 4,334,592, Cl. 181-121.000.
Lancet, Michael S.; and Curran, George P., 4,334,894, Cl. 48-209.000.

Container Corporation of America: *See*—
Watson, William H.; and Young, Chauncey, 4,334,611, Cl. 206-303.000.

Continental Group, Inc., The: *See*—
Krishnakumar, Suppayan M.; and Pocock, John F. E., 4,334,627, Cl. 215-1.00C.

Converse, Merle E., to Transaction Control Industries. Current limiting circuit for switching regulator. 4,335,345, Cl. 323-278.000.

Corcoran, William H.; Vasilakos, Nicholas P.; and Lawson, Daniel D., to California Institute of Technology. Coal desulfurization. 4,334,888, Cl. 44-1.0SR.

Cornelius Company, The: *See*—
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.

Cornell Research Foundation: *See*—
Meister, Alton; and Williamson, Joanne M., 4,335,210, Cl. 435-113.000.

Corawell, David A., to Board of Trustees, Michigan State University. Process for the extraction of metal ions. 4,334,999, Cl. 210-638.000.

Correll, Stephen: *See*—
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Cotter, Theodore P.: *See*—
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.

Courtaulds Limited: *See*—
Bahia, Hardev S., 4,334,401, Cl. 57-6.000.

Couvbenberg, Winston D.: *See*—
Peters, Robert C.; Vrenken, Louis E.; Couvbenberg, Winston D.; and Ligthart, Franciscus A. S., 4,335,330, Cl. 313-486.000.

Cox, Richard D. Livestock feeder apparatus. 4,334,502, Cl. 119-53.000.

Coyne, Roy J.: *See*—
Lombardi, Louis J.; and Coyne, Roy J., 4,334,970, Cl. 204-159.150.

CPC International Inc.: *See*—
Heady, Robert E., 4,335,207, Cl. 435-94.000.

Crandall, Kenneth C.; and Robinton, Michael A., to Robinton Products, Inc. Sensitive demodulator for frequency shift keyed carrier signals. 4,335,354, Cl. 329-126.000.

Crandon, Albert S., Jr.: *See*—
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., 4,334,563, Cl. 145-2.00R.

Crane, Harold E. Ship efficiency analyzer. 4,334,425, Cl. 73-112.000.

Crawford, Roy P.; Gilovich, Paul A.; and McMurtry, David H., to International Business Machines Corporation. Automatic tape threading apparatus for magnetic tape transports. 4,334,656, Cl. 242-195.000.

Credelle, Thomas L., to RCA Corporation. Focus mesh structure and biasing technique for flat panel display devices. 4,335,332, Cl. 315-366.000.

Credle, William S., Jr.: *See*—
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.

Cremeans, George E.; and Markle, Richard A., to Battelle Development Corporation. Air-driable alkyd resins and process for their preparation. 4,335,027, Cl. 528-281.000.

Creyf, Hubert S., to PRB N.V. Method of preparing polyurea foam materials. 4,334,944, Cl. 156-308.200.

Crichton, George: *See*—
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.

Croce, Carmen L.: *See*—
Apothaker, Richard L.; Reed, James; Croce, Carmen L.; and Wagner, Frederick B., III, 4,334,904, Cl. 65-36.000.

Cromwell, John E.: *See*—
Hyde, Glenn F.; and Cromwell, John E., 4,334,927, Cl. 75-240.000.

Cronenwett, William T.: *See*—
Childs, Warren L.; and Cronenwett, William T., 4,334,539, Cl. 128-303.140.

Crosby, Philip S., to Tektronix, Inc. Programmable two-quadrant transconductance amplifier. 4,335,356, Cl. 330-254.000.

Croset, Michel; and Velasco, Gonzalo, to Thomson-CSF. Electrochemical sensor for measuring relative concentrations of reactive species in a fluid mixture and a system comprising said sensor, especially for regulation. 4,334,510, Cl. 123-440.000.

Crouzet: *See*—
Foucard, Joseph, 4,335,463, Cl. 375-1.000.

Crown City Plating Co.: *See*—
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, 4,335,164, Cl. 427-304.000.

Crown Zellerbach Corporation: *See*—
Reba, Imants, 4,334,340, Cl. 19-299.000.

CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A.: *See*—
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.

CTS Corporation: *See*—
VanBenthuysen, John D., 4,334,352, Cl. 29-620.000.

Cummins, Earl W.; Gleich, Steven I.; and Vigilant, Robert M., to Du Pont de Nemours, E. I., and Company. Preparation of the calcium salt of alpha-hydroxy-gamma-methylmercaptobutyric acid. 4,335,257, Cl. 562-581.000.

Cunningham, James A.; and Tuxford, Anthony M., to National Semiconductor Corporation. Method of producing a fault transparent bubble memory by diffusing manganese in preselected permalloy elements. 4,335,162, Cl. 427-130.000.

Cunnington, Harry, to Norcros Investments Limited. Web indexing apparatus and overprinting machine. 4,334,645, Cl. 226-137.000.

Curran, George P.: *See*—
Lancet, Michael S.; and Curran, George P., 4,334,894, Cl. 48-209.000.

Cutler, Robert S.; and Moore, Michael T., to International Business Machines Corporation. Ink jet ink composition. 4,334,878, Cl. 524-88.000.

Cutter Laboratories, Inc.: *See*—
Wilson, David A.; and Serany, Frank J., 4,334,535, Cl. 128-214.00D.

Cvengros, Jan: *See*—
Tkac, Alexander; and Cvengros, Jan, 4,334,952, Cl. 159-11.00R.

Dabi, Shmuel; Loewrigkeit, Peter; and Van Dyk, Kenneth A., to Witco Chemical Corporation. Aqueous polyurethane compositions. 4,335,029, Cl. 524-589.000.

Daicel Chemical Industries, Ltd.: *See*—
Ueda, Yoichiro, 4,335,261, Cl. 568-366.000.

Daihatsu Motor Co., Ltd.: *See*—
Kawakatsu, Shiro, 4,335,429, Cl. 364-424.000.

Daimler-Benz Aktiengesellschaft: *See*—
Huber, Guntram, 4,334,693, Cl. 280-95.00R.
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, 4,334,699, Cl. 280-731.000.

Dainippon Screen Seizo Kabushiki Kaisha: *See*—
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, 4,335,407, Cl. 358-284.000.
Yamada, Mitsuhiko, 4,335,398, Cl. 358-80.000.

Daiwa Can Company: *See*—
Konagaya, Takeshi; and Yano, Shunji, 4,334,548, Cl. 134-170.000.

Dale, Steinar J., to Westinghouse Electric Corp. Particle trap with dielectric barrier for use in gas insulated transmission lines. 4,335,268, Cl. 174-14.00R.

Dalton, Augustine I., Jr.; and Skinner, Ronald W., to Air Products and Chemicals, Inc. Synthesis of hydrogen peroxide. 4,335,092, Cl. 423-584.000.

Dancy, William B.: *See*—
Harrison, Marvin H.; and Dancy, William B., 4,334,885, Cl. 23-300.000.

Danfoss A/S: *See*—
Dyhr, Jan; and Nissen, Ole J., 4,334,835, Cl. 417-363.000.
Hansen, Christian B.; and Flagstad, Carl D., 4,334,843, Cl. 418-61.00B.

Daniel, Sam M.: *See*—
Aufderheide, Maurice B.; and Daniel, Sam M., 4,335,372, Cl. 340-347.0DD.

Daniels, Dennis. Trolling rig. 4,334,380, Cl. 43-27.400.

Data General Corporation: *See*—
Trenary, Dale T.; Frederick, Allen H.; and Whelton, Robert M., 4,334,348, Cl. 29-571.000.

Datagraphix, Inc.: *See*—
Link, William T., 4,334,742, Cl. 353-78.000.
Link, William T., 4,334,743, Cl. 353-97.000.

Date, Nobuaki: *See*—
Saito, Syuichiro; Date, Nobuaki; Suzuki, Ryoichi; and Sugiura, Yoji, 4,334,749, Cl. 354-234.000.

Daugas, Claude, to Societe d'Etudes de Machines Thermiques S.E.M.T. Device for recovering heat energy in a supercharged internal-combustion engine. 4,334,409, Cl. 60-618.000.

Daum, Gerhard: *See*—
Bernhardt, Gunther; Petersen, Egon-Norbert; and Daum, Gerhard, 4,335,052, Cl. 260-465.00R.

Dauvergne, Jean L. R., to Societe Anonyme Francaise du Ferodo. Hydraulic control system. 4,334,713, Cl. 303-54.000.

David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. Stabilized, prostaglandin-containing tablets with controlled rate of solubility, for local use and process for the preparation thereof. 4,335,097, Cl. 424-14.000.

Davies, Ronald C., to Casino Investment Limited. Coin detecting apparatus for distinguishing genuine coins from slugs, spurious coins and the like. 4,334,604, Cl. 194-100.00A.

Davis, Alexander: *See*—
Rennie, Andrew L.; and Davis, Alexander, 4,334,574, Cl. 164-4.100.

Davis, Johnnie G., to Coca-Cola Company, The. Utility bag. 4,334,601, Cl. 190-44.000.

Davis, Robert A.: *See*—
Relyea, Douglas I.; and Davis, Robert A., 4,335,142, Cl. 424-337.000.

Davis, Robert D.; and Blizzard, Roy L., to Thermo Electron Corporation. Apparatus for producing selective particle sized oxide. 4,335,080, Cl. 422-244.000.

Davis, Thomas R.; and Bostian, Charles D., to Tempel-Callison Company. Lanyard support for metal building roof. 4,334,662, Cl. 248-237.000.

Day, John T.; and Udy, Lex L., to Mining Services International Corporation. Primer cup. 4,334,476, Cl. 102-275.700.

Dayco Corporation: *See*—
Jacob, Richard J.; White, Jack D.; and Richmond, Kenneth D., 4,334,569, Cl. 152-221.000.
Kleykamp, Donald L., 4,334,625, Cl. 213-61.000.

DEA Digital Electronic Automation SpA: *See*—
Germano, Francesco; and Cavicchioli, Ugo, 4,334,362, Cl. 33-174.00L.

Decatur Electronics, Inc.: *See*—
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Deem, Larry D. Pipe coupling. 4,334,559, Cl. 141-346.000.

De Feo, Francesco; Burei, Giovanni; and Cipolli, Roberto, to Aziende Colori Nazionali Affini ACNA S.p.A. Substituted arylamine intermediates for dyes. 4,335,246, Cl. 546-309.000.

De Guise, Yvon. Guard-rails assembly. 4,334,671, Cl. 256-65.000.

DeGuiseppi, David T., to Upjohn Company, The. Process for the preparation of a foam-cored laminate having metal facers and rigid polyisocyanurate foam core prepared in the presence of a dipolar aprotic organic solvent. 4,335,218, Cl. 521-99.000.

Degussa Aktiengesellschaft: *See*—
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.

Dekker, Lambert: *See*—
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,335,009, Cl. 252-187.270.

Delatush, John J., to United States of America, Navy. Adjustable container bulkhead assembly. 4,334,812, Cl. 410-52.000.

Delavarenne, Serge; and Tellier, Pierre, to PCUK Produits Chimiques Ugine Kuhlmann. Process for the preparation of the 5- and 6-nitro derivatives of 1,2,3,4-tetrahydro-anthraquinone from 1,2,3,4,4a,9a-hexahydro-9,10-anthracene-dione. 4,335,050, Cl. 260-369.000.

Delbag-Luftfilter GmbH: *See*—
Neumann, Gerhard-Max, 4,334,900, Cl. 55-350.000.

Delcoigne, Adrien; and Lanneau, Jacques, to Saint Gobain Industries. Process and mechanism for evolutive pulp flow regulation. 4,334,786, Cl. 366-132.000.

Delepine, Jean C. Wide-mouthed spout for flow of liquid. 4,334,328, Cl. 4-191.000.

De Luca, Paul V.: *See*—
Hollfelder, Thomas A.; and De Luca, Paul V., 4,335,416, Cl. 361-119.000.

del Valle, Frank: *See*—
Rikon, Steven M.; and del Valle, Frank, 4,335,153, Cl. 426-540.000.

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Derbyshire, Francis J.; Varghese, Philip; and Whitehurst, Darrell D., to Mobil Oil Corporation. Method for the generation of recycle solvents in coal liquefaction. 4,334,977, Cl. 208-8.0LE.

Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., to TRW Inc. Method and apparatus for use in making an object. 4,334,495, Cl. 118-669.000.

Detmold, Peter J. Draft gear locking device. 4,334,624, Cl. 213-43.000.

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Carduck, Franz-Josef; Kloetzer, Dietrich; and Veldman, Gerard, 4,335,144, Cl. 426-62.000.

DeVries, Richard C.; and Hill, Edwin R., to Technicare Corporation. Radiographic apparatus and method with automatic exposure control. 4,335,307, Cl. 250-322.000.

Deweese, Vernon D. Torsion bar suspension assembly. 4,334,697, Cl. 280-689.000.

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Diamanti, Enrico: *See*—
de Witt, Paolo; and Diamanti, Enrico, 4,335,256, Cl. 562-450.000.

Dickey, Baron C. Electronic angle resolver. 4,335,443, Cl. 364-815.000.

Diebel, Howard; and deMan, Albert, to Moyer Diebel Limited. Washing machine for glasses and the like. 4,334,547, Cl. 134-46.000.

Dietz, Hermann: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Dietze, Andreas: *See*—
Kriedt, Hans; and Dietze, Andreas, 4,335,359, Cl. 330-257.000.

Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, to Crown City Plating Co. Conditioning of polyamides for electroless plating. 4,335,164, Cl. 427-304.000.

Dimsa, Robert D.: *See*—
Mazur, Richard J.; Dimsa, Robert D.; and Pekarcik, John T., 4,334,711, Cl. 303-16.000.

Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, to Ciba-Geigy Corporation. 4-(2',2,2'-

Trihalogenoethyl)-cyclobutane-1-sulfonic acid salts with optically active bases. 4,335,057, Cl. 260-501.190.
Dinius, James H., to Kimberly-Clark Corporation. Method of forming a fibrous web with high fiber throughput screening. 4,335,066, Cl. 264-121.000.
Dinter, Konrad M., to RCA Corporation. Digital tracking system. 4,335,408, Cl. 360-77.000.
Dischert, William A., to RCA Corporation. Length counter for web transport system. 4,335,411, Cl. 360-137.000.
Dittmer, Ellen; and Pietryga, Lothar. Collapsible, portable barbecue grill. 4,334,516, Cl. 126-9.00R.
Djurson, Sten: *See*—
Waerve, Hans; and Djurson, Sten, 4,335,315, Cl. 250-523.000.
Dr. Ing. h.c.F. Porsche Aktiengesellschaft: *See*—
Ruf, Gebhard, 4,334,698, Cl. 280-690.000.
Doi, Kazumi: *See*—
Ikeda, Yoshi; Osada, Kenji; and Doi, Kazumi, 4,334,842, Cl. 418-45.000.
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, to Asahi Kasei Kogyo Kabushiki Kaisha. Microporous film, particularly battery separator, and method of making. 4,335,193, Cl. 429-251.000.
Dombro, Robert A., to Chemplex Company. Catalyst and method. 4,335,016, Cl. 252-429.00B.
Domey, Jacques; and Rioux, Marc, to Canadian Patents & Dev. Limited. Non-contact optical apparatus for measuring the length or speed of a relatively moving surface. 4,334,779, Cl. 356-358.000.
Donner, Jurgen: *See*—
Ludwig, Bernd; and Donner, Jurgen, 4,335,288, Cl. 200-307.000.
Donovan, Lawrence P., III: *See*—
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, 4,335,164, Cl. 427-304.000.
Dooley, Richard A. Apparatus for manipulating a spray head of a spray gun. 4,334,649, Cl. 239-587.000.
Doryokuro Kakunenryo Kaihatsu Jigyodan: *See*—
Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, 4,334,937, Cl. 148-12.00R.
Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V.: *See*—
van Overbruggen, Garardus J. J.; van Beaumont, Richard A.; and Thijssen, Henricus A. C., 4,334,640, Cl. 222-207.000.
Dow Chemical Company, The: *See*—
Clarke, Donald H.; Pomranky, George J.; and Schmidt, Donald L., 4,335,219, Cl. 521-128.000.
Thomas, Lowell S., 4,335,038, Cl. 524-188.000.
Downs, Edgar S. Motor-driven cap-gripper and can-opener. 4,334,332, Cl. 7-150.000.
Dowty Fuel Systems Limited: *See*—
Todd, Geoffrey C., 4,334,406, Cl. 60-223.000.
Doyel, John S. Exerciser. 4,334,678, Cl. 272-141.000.
Doyle, Holly T.; Doyle, Robert O.; and Thomis, Wendl. Hand-held pinball game. 4,334,679, Cl. 273-1.00E.
Doyle, Robert O.: *See*—
Doyle, Holly T.; Doyle, Robert O.; and Thomis, Wendl, 4,334,679, Cl. 273-1.00E.
Draiswerke GmbH: *See*—
Engels, Kaspar, 4,334,784, Cl. 366-76.000.
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, to Siemens Aktiengesellschaft. Circuit for generating an electric signal proportional to a flux component of a rotating-field machine. 4,335,343, Cl. 318-798.000.
Drumare, Huguette. Tank designed to contain a liquefied gas. 4,334,410, Cl. 62-49.000.
Duchateau, Jacques; and Van den Bossche, Christien, to BFG Glassgroup. Vitreous fertilizer compositions. 4,334,908, Cl. 71-52.000.
Dukess, Joseph. Solar heat apparatus. 4,334,522, Cl. 126-440.000.
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, to Servimetal. Cartridge for active filtration and treatment of liquid metals and alloys. 4,334,990, Cl. 210-186.000.
Dumont, Claude: *See*—
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.
Dunand, Francois M.: *See*—
Appel, Jean G.; and Dunand, Francois M., 4,334,434, Cl. 73-861.290.
Dunlop Limited: *See*—
Bond, Robert, 4,334,567, Cl. 152-209.00R.
Du Pont de Nemours, E. I., and Company: *See*—
Adelman, Robert L.; and Turner, John J. P., 4,335,185, Cl. 428-361.000.
Chambers, William J.; and Plambeck, Louis, Jr., 4,335,197, Cl. 430-271.000.
Cherkofsky, Saul C., 4,335,136, Cl. 424-274.000.
Collette, John W.; and Tullock, Charles W., 4,335,225, Cl. 525-240.000.
Concannon, Thomas P., 4,335,030, Cl. 523-408.000.
Cummins, Earl W.; Gleich, Steven I.; and Vigilant, Robert M., 4,335,257, Cl. 562-581.000.
Fowell, Peter A., 4,335,036, Cl. 524-376.000.
Hazan, Isidor, 4,335,031, Cl. 524-504.000.
Hengel, Rolf; and Eaton, David F., 4,335,202, Cl. 430-604.000.
Irwin, Robert S., 4,335,232, Cl. 528-128.000.
Krespan, Carl G., 4,335,255, Cl. 560-174.000.
Levy, Stanley B., 4,335,069, Cl. 264-290.200.
Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., 4,335,199, Cl. 430-434.000.
Moon, Marcus P., 4,335,140, Cl. 424-298.000.
Moore, Albert L.; Stewart, Clare A., Jr.; and Swerlick, Isadore, 4,335,238, Cl. 526-254.000.
Yates, Paul C., 4,335,264, Cl. 568-479.000.
Durant, Will G. Valve bag placer. 4,334,558, Cl. 141-114.000.
Dworsky, Lawrence N.: *See*—
Wakat, Emory, Jr.; Dworsky, Lawrence N.; Krolak, Leo V.; Whalin, Jeffery A.; and Mech, Harold W., 4,334,343, Cl. 29-25.350.
Dwyer, Francis G.: *See*—
Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, 4,335,020, Cl. 252-455.00Z.
Dyar, Harrison G. Thermal insulating system particularly adapted for building construction. 4,334,395, Cl. 52-407.000.
Dybas, Richard A.: *See*—
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,335,141, Cl. 424-304.000.
Dyer, Thomas A., to Pentak Corporation. Load-entry assembly for conveyor systems. 4,334,607, Cl. 198-487.000.
Dyhr, Jan; and Nissen, Ole J., to Danfoss A/S. Encapsulated refrigerator. 4,334,835, Cl. 417-363.000.
Dynamit Nobel Aktiengesellschaft: *See*—
Bernhardt, Gunther; Petersen, Egon-Norbert; and Daum, Gerhard, 4,335,052, Cl. 260-465.00R.
Dysarz, Edward D., to James G. Brown & Associates, Inc. Support structure for offshore platforms. 4,334,802, Cl. 405-196.000.
Dziedzic, Edward, to A. B. Chance Company. Modular screw anchor having lead point non-integral with helix plate. 4,334,392, Cl. 52-157.000.
Early, James M., to Fairchild Camera & Instrument Corp. Method for semiconductor memory testing. 4,335,457, Cl. 371-28.000.
Eastman Kodak Company: *See*—
Caraballo, Angel, 4,335,173, Cl. 428-65.000.
Coney, Charles H., 4,335,220, Cl. 523-414.000.
Harvey, Donald M., 4,334,753, Cl. 354-289.000.
Miller, Donald N.; and Kydd, Richard A., 4,335,201, Cl. 430-527.000.
Wilson, John C.; and Yacobucci, Paul D., 4,335,254, Cl. 560-138.000.
Eaton Corporation: *See*—
Aschenbach, Louis F.; and Pusatcioglu, Selami Y., 4,335,287, Cl. 200-302.000.
Migrin, Robert S., 4,335,283, Cl. 200-61.250.
Eaton, David F.: *See*—
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Ebauches Electroniques S.A.: *See*—
Fatton, Jean-Claude, 4,335,453, Cl. 368-30.000.
Eberhard Faber, Inc.: *See*—
Nelson, John E., 4,334,364, Cl. 33-438.000.
Eberlin, Philippe; and Rossi, Mario, to Blanchut & Bertrand S.A. Electro-acoustic device for the underwater signalling and identification of a vessel. 4,335,452, Cl. 367-134.000.
Eckert, Eugen, to Maschinenfabrik Rissen GmbH; and 4P Nicolaus Kempten GmbH. Process for forming a sleeve by winding and a device for executing the method. 4,334,875, Cl. 493-303.000.
Edeleanu Gesellschaft mbH: *See*—
Prezelj, Milan; Osterburg, Gunter; and Putz, Joachim E., 4,334,964, Cl. 203-14.000.
Edgerton, Milton T.: *See*—
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Edison International, Inc.: *See*—
Kolditz, John W., 4,335,167, Cl. 428-35.000.
Edwards, Joseph T., to Mobil Oil Corporation. Determination of pyrite and siderite content of formation deposits. 4,334,882, Cl. 23-230.00R.
Efimov, Vladimir M.; Naumova, Tatyana N.; Bykova, Irina G.; and Stroganova, Larisa A. Process for producing ammonium carbonate. 4,335,088, Cl. 423-420.000.
Efner, Howard F., to Phillips Petroleum Company. Lubricating compositions containing diesters of dimercapto ethers. 4,335,004, Cl. 252-48.600.
Electric Power Research Institute, Inc.: *See*—
Levin, Harry P., 4,335,273, Cl. 174-52.00S.
Eli Lilly and Company: *See*—
Kukolja, Stjepan; and Pfeil, Janice L., 4,335,240, Cl. 544-90.000.
Elite Electrical Products Limited: *See*—
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Elliott, John F.: *See*—
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Ellis, Giles Arthur: *See*—
Simmons, John J.; and Hutson, Douglas W., 4,334,460, Cl. 98-83.000.
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., to Leather's Chemical Company, Limited. Phosphoric acid ammoniation process to produce liquid fertilizers. 4,334,907, Cl. 71-34.000.
Ellison, Thomas L.: *See*—
Shay, Robert H.; and Ellison, Thomas L., 4,334,938, Cl. 148-16.700.
Elston, Jay T., to Kardon Industries, Inc. Method of manufacturing composite containers. 4,334,487, Cl. 413-6.000.
Eltra Corporation: *See*—
Nash, Donald R., 4,334,509, Cl. 123-414.000.

Emerson Electric Company: *See*—
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Emery Industries, Inc.: *See*—
Bender, Ruediger F.; and van Veersen, Gerardus J., 4,335,227, Cl. 525-333.000.
Emhart Industries, Inc.: *See*—
Adams, Richard E.; and Stafford, Richard W., 4,335,282, Cl. 200-38.00R.
Ender, Erhard: *See*—
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Endo, Akira: *See*—
Koizumi, Akio; Nakazawa, Hiroshi; and Endo, Akira, 4,335,423, Cl. 363-21.000.
Enertec: *See*—
Filippini, Fulvio, 4,335,336, Cl. 318-6.000.
Engel, John F., to FMC Corporation. Insecticidal pyrethroid enantiomer pair. 4,335,252, Cl. 560-124.000.
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., to Westinghouse Electric Corp. Circuit interrupter with remote indicator and power supply. 4,335,413, Cl. 361-93.000.
Engel, Joseph C.: *See*—
Wilson, John T.; Wafer, John A.; and Engel, Joseph C., 4,335,437, Cl. 364-483.000.
Engel, Jurgen: *See*—
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.
Engelhard Corporation: *See*—
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.
Engels, Kaspar, to Draiswerke GmbH. Method for processing thermoplastics or thermosetting plastics. 4,334,784, Cl. 366-76.000.
Engineered Systems, Inc.: *See*—
VanNess, Bradford O., 4,335,448, Cl. 364-900.000.
English Clays Lovering Pochin & Co. Limited: *See*—
Broad, Bernard H., 4,334,996, Cl. 210-350.000.
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., to Budd Company, The. Swingable impact tool. 4,334,563, Cl. 145-2.00R.
Ergaver, Rayko, to Capella Inc. Hair styler extrusion. 4,335,168, Cl. 428-36.000.
Escher Wyss Ltd.: *See*—
Biondetti, Mario, 4,334,344, Cl. 29-116.0AD.
Esper, Friedrich: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.
Essig, Robert A.: *See*—
Buth, Randy L.; and Essig, Robert A., 4,334,648, Cl. 236-49.000.
Etablissements Letang & Remy: *See*—
Victor, Rene, 4,334,417, Cl. 72-56.000.
Ets. Francois Salomon et Fils, S. A.: *See*—
Salomon, Georges P. J., 4,334,367, Cl. 36-117.000.
Eusterbarkey, Friedhelm, to A. Stephan u. Sohne GmbH & Co. Mixing and kneading tool. 4,334,789, Cl. 366-343.000.
Evans, Gordon V.: *See*—
Caldecourt, Leonard R.; Evans, Gordon V.; and Parsons, Tony V., 4,335,308, Cl. 250-358.00R.
Everstrong Marketing, Inc.: *See*—
U'Ren, Kenneth R., 4,334,393, Cl. 52-169.600.
Ewald, Jerome T.: *See*—
Brown, Arthur K.; Hendrickson, Richard T.; and Ewald, Jerome T., 4,334,832, Cl. 417-218.000.
Exxon Research & Engineering Co.: *See*—
Broadhurst, Thomas E., 4,334,978, Cl. 208-33.000.
Chandler, John E.; and Lenz, Robert W., 4,335,235, Cl. 528-397.000.
Lang, Robert J., 4,334,893, Cl. 48-202.000.
Mentzer, David, 4,334,983, Cl. 208-326.000.
F. Jos. Lamb Company: *See*—
Bonzack, Eugene P., 4,334,436, Cl. 74-44.000.
Fabrig, Paul, to Womako Maschinenkonstructionen GmbH. Apparatus for transporting stacks of paper sheets or the like. 4,334,606, Cl. 198-650.000.
Fair, Delbert W., to Conoco Inc. Sea water hydraulic fluid system for an underground vibrator. 4,334,592, Cl. 181-121.000.
Fairchild Camera & Instrument Corp.: *See*—
Early, James M., 4,335,457, Cl. 371-28.000.
Sloane, Edwin A., 4,335,373, Cl. 340-347.0CC.
Farag, Maya S.: *See*—
Marano, John P., Jr.; and Farag, Maya S., 4,335,181, Cl. 428-319.300.
Faria, Thomas G. Moving magnet electrical meter with single pivot pin for the moving magnet and a fixed return magnet. 4,335,351, Cl. 324-146.000.
Farmer, Thomas E. Goose decoy back pack. 4,334,643, Cl. 224-153.000.
Farmhand Inc.: *See*—
Nishibe, Kazuteru; and Furukawa, Naoji, 4,334,467, Cl. 100-89.000
Farrington, Alan; and Nelson, Peter F., to Australian Paper Manufacturers Limited. Method of reutilizing kraft spent liquor. 4,334,956, Cl. 162-30.110.
Fathergill, Rex D.: *See*—
Martin, James O.; Fathergill, Rex D.; and Krimm, David L., 4,334,456, Cl. 84-314.00R.
Fatton, Jean-Claude, to Ebauches Electroniques S.A. Electronic watch. 4,335,453, Cl. 368-30.000.
Faulconer, William M., to Phillips Petroleum Co. Tube guide. 4,334,420, Cl. 72-250.000.
Fearing, Ralph B., to Stauffer Chemical Company. Textiles containing a poly(oxyorganophosphate/phosphonate) flame retardant. 4,335,178, Cl. 428-253.000.
Feder, Joseph: *See*—
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.
Fegan, Richard: *See*—
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.
Fehr, Rainer, to Hoffmann-La Roche Inc. Method and apparatus for flow velocity determination. 4,334,543, Cl. 128-663.000.
Fehrer, Ernst. Apparatus for making a yarn. 4,334,400, Cl. 57-5.000.
Feichtinger, Alfred: *See*—
Brandenberger, Kurt; Feichtinger, Alfred; and Fischer, Werner, 4,334,960, Cl. 201-17.000.
Felix, Willi, to Jos. Hunkeler AG Fabrik fur graphische Maschinen. Apparatus for automatically applying sheet units to endless web. 4,334,672, Cl. 270-53.000.
Ferguson, Arthur; and Spector, George. Portable window dryer vent. 4,334,461, Cl. 98-119.000.
Fernandez, Jose R. J.; and Gonzalez, Fernando B. Cigarette dispenser adaptor. 4,334,634, Cl. 221-131.000.
Ferraro, Armand J.: *See*—
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,335,460, Cl. 371-49.000.
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., to Coca-Cola Company, The; and Cornelius Company, The. Diaphragm type fluid pump having a flexible diaphragm with an internal reinforcing plate. 4,334,838, Cl. 417-395.000.
Fetheroff, Charles W.: *See*—
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.
Feuer, Mervyn L., to Frazier, Leonard. Signalling method and apparatus for enhancing echo images. 4,335,451, Cl. 367-115.000.
Feuersanger, Alfred E.: *See*—
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Fiat Auto S.p.A.: *See*—
Palitto, Mauro, 4,334,600, Cl. 188-314.000.
Fichter, Peter K., to Polaroid Corporation. Film assemblage having film releasably attached to film spool. 4,334,750, Cl. 354-275.000.
Field, Peter, to Approved Performance Tooling, Inc. Cutting tool and holder therefor. 4,334,446, Cl. 82-36.00R.
Filippini, Fulvio, to Enertec. Device for controlling speed. 4,335,336, Cl. 318-6.000.
Fima, Raoul G.; and Mahieux, Jacques E. Apparatus for indicating parameters sensed on a rotatable wheel. 4,334,428, Cl. 73-146.500.
Findeisen, Kurt: *See*—
Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, 4,334,905, Cl. 71-27.000.
Finnemore, Fred M.: *See*—
Johnson, Bruce K.; and Finnemore, Fred M., 4,334,752, Cl. 354-288.000.
Firmenich SA: *See*—
Schulte-Elte, Karl H.; Becker, Joseph J.; and Schenk, Walter, 4,335,262, Cl. 568-361.000.
Fischer, Hanspeter; Thummel, Rudolph C.; and Wehrli, Rudolf, to Ciba-Geigy Corporation. Insecticidal α-cyano-3-phenoxy-benzyl-2-(4-azidophenyl)-3-methylbutyrates. 4,335,118, Cl. 424-226.000.
Fischer, Werner: *See*—
Brandenberger, Kurt; Feichtinger, Alfred; and Fischer, Werner, 4,334,960, Cl. 201-17.000.
Fish, Keith: *See*—
Westlake, Patrick C.; Fish, Keith; and Mallory, James D., 4,334,803, Cl. 405-259.000.
Fisons Limited: *See*—
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.
Flagg, Rodger H. Hand operated, dual chambered, pneumatic pump. 4,334,839, Cl. 417-536.000.
Flagstad, Carl D.: *See*—
Hansen, Christian B.; and Flagstad, Carl D., 4,334,843, Cl. 418-61.00B.
Flanagan, Bernard E.: *See*—
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Fleek, Arthur E.: *See*—
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,335,460, Cl. 371-49.000.
Fleetguard, Inc.: *See*—
Jensen, Richard V., 4,334,994, Cl. 210-336.000.
Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., to Allied Corporation. High impact molding compositions. 4,335,223, Cl. 525-179.000.
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., to Kolmar Laboratories Inc. Cosmetic pencil. 4,334,546, Cl. 132-88.500.
FMC Corporation: *See*—
Engel, John F., 4,335,252, Cl. 560-124.000.
Gerow, Gordon P., 4,334,962, Cl. 202-185.00R.
James, Donald R., 4,335,137, Cl. 424-275.000.
Olson, Marvin C., 4,334,375, Cl. 42-1.00T.
Stanley, Robert C., 4,335,145, Cl. 426-231.000.

Foldesi nee Szasz, Zsuzsanna: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.

Fonck, Hugo. Automatic transmission. 4,334,440, Cl. 74-789.000.

Ford Aerospace & Communications Corp.: *See—*
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.

Ford Motor Company: *See—*
Sherman, Andrew M., 4,334,923, Cl. 75-124.000.

Foster, Craig A.: *See—*
Sakowski, Walter J.; Carty, Larry G.; and Foster, Craig A., 4,335,090, Cl. 423-474.000.

Foster, George B.; and Harris, David E. Simultaneous transmission signal detection system. 4,335,468, Cl. 455-67.000.

Foster Wheeler Energy Corporation: *See—*
Livemore, Gerald S. V., 4,334,892, Cl. 48-76.000.

Foucard, Joseph, to Crouzet. Simultaneous integral multi-access transmission system on transmission lines by optical fibres. 4,335,463, Cl. 375-1.000.

Fowell, Peter A., to Du Pont de Nemours, E. I., and Company. Plasticized polyvinyl butyral employing propylene oxide oligomers. 4,335,036, Cl. 524-376.000.

Fowler, Gary J. Method of marking a metal device. 4,335,295, Cl. 219-121.0LM.

Fox, Robert, to Norco Industries, Inc. Hydraulic release system for lifting jack. 4,334,667, Cl. 254-8.00B.

Franchak, Nelson P.: *See—*
Ameen, Joseph G.; Franchak, Nelson P.; Rasile, John; and Rivenburgh, Dennis L., 4,334,949, Cl. 156-642.000.

Francis, Peter S.: *See—*
Lordi, Frank E.; and Francis, Peter S., 4,335,037, Cl. 524-504.000.

Frank, Dieter; and Metcalfe, Lincoln D., to Akzona Incorporated. Method for flocculating metal oxide particles in an organic medium. 4,334,887, Cl. 23-313.00R.

Franke, Gunther: *See—*
Tkatschenko, Gunter T.; and Franke, Gunther, 4,334,435, Cl. 73-864.860.

Franke, Kurt, to Siemens Aktiengesellschaft. X-ray diagnostic generator comprising adjustment means for the x-ray tube voltage. 4,335,310, Cl. 250-408.000.

Franklin, Charles H.: *See—*
Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., 4,334,350, Cl. 29-611.000.

Franz, Dieter: *See—*
Brand, Konrad; and Franz, Dieter, 4,335,182, Cl. 428-319.300.

Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, to Chemische Werke Huels Aktiengesellschaft. Catalyst for the production of maleic anhydride. 4,335,018, Cl. 252-435.000.

Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See—*
Theurer, Josef, 4,334,479, Cl. 104-12.000.

Franzen, Gustav, to Palitex Project-Company GmbH. Two-for-one twisting spindle with a supply receptacle for a lubricant. 4,334,404, Cl. 57-296.000.

Fratelli Borletti S.p.A.: *See—*
Turchi, Enrico, 4,334,475, Cl. 102-206.000.

Frazier, Leonard: *See—*
Feuer, Mervyn L., 4,335,451, Cl. 367-115.000.

Frechet, Daniel: *See—*
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.

Frederick, Allen H.: *See—*
Trenary, Dale T.; Frederick, Allen H.; and Whelton, Robert M., 4,334,348, Cl. 29-571.000.

Frederiksen, Thomas M.: *See—*
Connolly, Joseph J., Jr.; Redfern, Thomas P.; and Frederiksen, Thomas M., 4,335,371, Cl. 340-347.0CC.

Frei, Paul, to Griesser AG. Venetian blind construction. 4,334,572, Cl. 160-170.000.

Frenken, Hans: *See—*
Wilke, Werner; Gref, Hans; and Frenken, Hans, 4,334,884, Cl. 23-293.00R.

Friedman, Jon. Earth photo globe with overlay and magnification assembly. 4,334,867, Cl. 434-145.000.

Friese, Karl H.: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Frisby, C. Richard: *See—*
Beach, Sidney C.; and Frisby, C. Richard, 4,334,966, Cl. 204-25.000.

Frohlich, Alfons; and Griessbaum, Karl, to Opti Patent-, Forschungs- und Fabrikations-AG. Woven slide fastener stringer. 4,334,556, Cl. 139-384.00B.

Fromson, Howard A.; and Gracia, Robert F., to Fromson, Howard A. Apparatus for making a lithographic printing plate with reinforced image. 4,334,769, Cl. 355-100.000.

Frosien, Juergen: *See—*
Anger, Klaus; and Frosien, Juergen, 4,335,309, Cl. 250-396.00R.

Frykhult, Rune H., to AB Celleco. Separator for a mixture of a suspension and coarse heavy particles. 4,334,986, Cl. 209-17.000.

Fuchek, Linus C. Thermostat control. 4,334,576, Cl. 165-12.000.

Fuji Electric Company, Ltd.: *See—*
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.

Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, 4,335,369, Cl. 338-34.000.

Fuji Photo Film Co., Ltd.: *See—*
Matsumoto, Fumio, 4,335,399, Cl. 358-80.000.

Fuji Xerox Co., Ltd.: *See—*
Ishii, Shoichi, 4,334,674, Cl. 271-245.000.

Fujii, Osamu: *See—*
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Fujimori, Ryo, to Olympus Optical Co., Ltd. Sample applicator. 4,334,879, Cl. 23-230.00R.

Fujioka, Kazumasa; and Nakayama, Wataru, to Hitachi, Ltd. Rotor for hydrogen-cooled rotary electric machines. 4,335,324, Cl. 310-61.000.

Fujisawa, Koichi: *See—*
Hamada, Kazuhiko; Suzukamo, Goufu; and Fujisawa, Koichi, 4,335,049, Cl. 549-483.000.

Fujizoki Pharmaceutical Co., Ltd.: *See—*
Tsuji, Yoshikatsu, 4,335,096, Cl. 424-12.000.

Fukuda, Kazushige: *See—*
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.

Fukuoka, Tatsuhiko: *See—*
Futamura, Kenichiro; and Fukuoka, Tatsuhiko, 4,334,926, Cl. 75-230.000.

Fukuzawa, Kenichi; and Kumazawa, Tetsuo, to Hitachi, Ltd. Mask support for shadow mask assembly. 4,335,329, Cl. 313-406.000.

Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, to Green Cross Corporation, The. Employment of enteric coated IgA for hypoproteinemia in intestinal infectious diseases. 4,335,099, Cl. 424-32.000.

Furukawa, Naoji: *See—*
Nishibe, Kazuteru; and Furukawa, Naoji, 4,334,467, Cl. 100-89.000.

Furusato, Masayasu: *See—*
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.

Futamura, Kenichiro; and Fukuoka, Tatsuhiko, to Taiho Kogyo Co., Ltd. Bearing material. 4,334,926, Cl. 75-230.000.

Gabriel, Naeem B. Bike for traveling over water. 4,334,490, Cl. 114-270.000.

Gach, Peter P., to Sunbeam Plastics Corporation. Child-resistant dispensing closure. 4,334,639, Cl. 222-153.000.

Gagneraud, Francis. Mortars for thermal insulating joints. 4,334,930, Cl. 106-97.000.

Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, to Siemens Aktiengesellschaft. Switch-through unit for bit groups within a program controlled, electronic data switching system. 4,335,456, Cl. 370-58.000.

Galantay, Eugene E., to Sandoz, Inc. 1-Alkyl, 1-phenyl-butenes. 4,335,124, Cl. 424-248.400.

Gancarz, Robert M., Sr. Apparatus for recovering tin from tin dross. 4,334,664, Cl. 249-108.000.

Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A. Terminal equipment for data-transmission network including digitally operating modem. 4,335,446, Cl. 364-900.000.

Gant, Leroy A. Voltage regulator for a controlled field generator. 4,335,344, Cl. 322-25.000.

Garabedian, Armen. Apparatus for making a stress-free plastic article. 4,334,850, Cl. 425-388.000.

Gardner, Samuel M., to Genieco, Inc. Method of burning incense. 4,334,853, Cl. 431-2.000.

Gargrave, Robert J. Key type connector and bearing device. 4,334,714, Cl. 308-3.00R.

Garrett Corporation, The: *See—*
Burch, Darrel W.; and Wojciehowski, James P., 4,334,549, Cl. 137-72.000.
Payne, George K., 4,334,411, Cl. 62-86.000.

Garver, Thomas L., to W. A. Brown & Son, Inc. Multi-zone energy supply controller. 4,335,320, Cl. 307-39.000.

Gaston, Paul; and Schwartz, Morton W. Adjustable necklace construction. 4,334,413, Cl. 63-2.000.

Gaston, William D. Motor boat. 4,334,872, Cl. 440-61.000.

Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., to Stauffer Chemical Company. Herbicidal compositions and methods. 4,334,911, Cl. 71-93.000.

Gauvry, George R., to Cho-Pat, Inc. Knee strap. 4,334,528, Cl. 128-80.00C.

Geary, Frank. Rack for the display and storage of stemmed drinking glasses. 4,334,623, Cl. 211-71.000.

Gebhardt, Istvan: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.

Geerk, Jochen; and Ratzel, Fritz, to Kernforschunggszentrum Karlsruhe GmbH. Generator for pulsed electron beams. 4,335,314, Cl. 250-492.300.

Geiger, Walter R.; and Kessinger, Boyd A., to Westinghouse Electric Corp. Removable orifice. 4,334,554, Cl. 138-44.000.

Geiss, Karl-Heinz: *See—*
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.

Geller, Douglas A.: *See*—
Melin, Arthur K.; Gillespie, Richard L.; and Geller, Douglas A., 4,334,385, Cl. 46-74.00D.
General Dynamics Corporation: *See*—
Slysh, Paul, 4,334,816, Cl. 414-10.000.
General Electric Company: *See*—
Markezich, Ronald L., 4,335,039, Cl. 524-108.000.
Miller, Sammy L.; and Kindig, Alan L., 4,335,325, Cl. 310-214.000.
Olander, Walter K.; and Zamek, Otto S., 4,335,234, Cl. 528-214.000.
Reinert, Raymond L.; and Kaufman, Charles D., 4,334,881, Cl. 23-230.00A.
Rosenquist, Niles R., 4,335,032, Cl. 524-269.000.
Sakshaug, Eugene C.; and Stetson, Earl W., 4,335,417, Cl. 361-127.000.
General Foods Corporation: *See*—
Wiener, Claire; and Haas, Gerhard J., 4,335,143, Cl. 426-50.000.
General Mills, Inc.: *See*—
Blake, Jon R.; Knutson, Richard K.; and Strommer, Deon L., 4,335,155, Cl. 426-565.000.
General Signal Corporation: *See*—
Clement, Mark W. P., 4,335,418, Cl. 361-152.000.
Genieco, Inc.: *See*—
Gardner, Samuel M., 4,334,853, Cl. 431-2.000.
Geo Vann, Inc.: *See*—
Vann, Roy R., 4,334,580, Cl. 166-268.000.
Georg Fischer Aktiengesellschaft: *See*—
Gross, Paul; and Kleeli, Ruedi, 4,334,848, Cl. 425-262.000.
George, Robert M. Ventilating system for livestock houses. 4,334,577, Cl. 165-54.000.
Gerberding, Karl, to BASF Aktiengesellschaft. Preparation of mixtures of linear three-block copolymers, and moldings produced therefrom. 4,335,221, Cl. 525-89.000.
Germano, Francesco; and Cavicchioli, Ugo, to DEA Digital Electronic Automation SpA. Bidimensional tracer of machine tools or measuring machines. 4,334,362, Cl. 33-174.00L.
Gerow, Gordon P., to FMC Corporation. Apparatus for stripping immiscible materials. 4,334,962, Cl. 202-185.00R.
Gewerkschaft Eisenhutte Westfalia: *See*—
Stuckmann, Dieter, 4,334,800, Cl. 405-145.000.
Giandonato, Giuseppe: *See*—
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.
Giben Impianti S.p.A.: *See*—
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Gibert, Henri: *See*—
Rios, Gilbert M.; Gibert, Henri; and Baxerres, Jean-Louis, 4,334,998, Cl. 210-617.000.
Gibson, David E.: *See*—
Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.
Giermek, Mark J.: *See*—
Hodgkins, Charles E.; and Giermek, Mark J., 4,335,216, Cl. 501-32.000.
Gill, Robert W., to Commonwealth of Australia - Dept. of Health, The. Ultrasonic linear array beamforming method and apparatus. 4,334,432, Cl. 73-602.000.
Gillespie, Richard L.: *See*—
Melin, Arthur K.; Gillespie, Richard L.; and Geller, Douglas A., 4,334,385, Cl. 46-74.00D.
Gilovich, Paul A.: *See*—
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Gimesi, Antal: *See*—
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.
Givler, Omar R., to Portage Electric Products, Inc. Dead case thermostat assembly. 4,335,368, Cl. 337-372.000.
Glanz, Richard; and Chang, Sun C., to Baldwin-Korthe Web Controls, Inc. Web break detector with adjustable scanning head. 4,335,316, Cl. 250-572.000.
Glass, Alastair M.; Kaminow, Ivan P.; and Olson, Donald H., to Bell Telephone Laboratories, Incorporated. Alignment of optical components. 4,334,774, Cl. 356-152.000.
Glaxo Group Limited: *See*—
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, 4,335,121, Cl. 424-241.000.
Gleich, Steven I.: *See*—
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Gniewek, Stephen A.: *See*—
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Godwin, Millard C.: *See*—
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.
Goedert, Ferdinand: *See*—
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Goes, Michael J.; Masly, John R.; and Schmidlin, Albertus E., to United States of America, Army. Fluidic range-safe device. 4,334,478, Cl. 102-529.000.
Gold Lode, Inc.: *See*—
Thompson, Arnold M., 4,334,793, Cl. 401-1.000.
Gold, Vance B., to American Can Company. Signal enhancement circuit. 4,335,440, Cl. 364-571.000.
Goldberg, Norman N. Clip-on lens target. 4,334,773, Cl. 356-124.000.
Goldie, Elizabeth L. Food cooking and lifting device. 4,334,463, Cl. 99-426.000.
Goldsmith, Norman; and Hsu, Sheng T., to RCA Corporation. Method of forming an improved gate member for a gate injected floating gate memory device. 4,334,347, Cl. 29-571.000.
Gonzalez, Fernando B.: *See*—
Fernandez, Jose R. J.; and Gonzalez, Fernando B., 4,334,634, Cl. 221-131.000.
Goodwin, Reese J.: *See*—
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Goodyear Tire & Rubber Company, The: *See*—
Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., 4,334,615, Cl. 206-447.000.
Goolkate, Jannes J., to Akzo N.V. Liquid composition for phosphating metal surfaces. 4,334,936, Cl. 148-6.15R.
Gorski, Carol A.; and Gorski, Saul B. Pasta gauge. 4,334,361, Cl. 33-174.00T.
Gorski, Saul B.: *See*—
Gorski, Carol A.; and Gorski, Saul B., 4,334,361, Cl. 33-174.00T.
Gort, Alfred F.; and Moore, Charles E., to Hewlett-Packard Company. Surveying instrument. 4,335,306, Cl. 250-231.0SE.
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, to Hitachi, Ltd. Data processing apparatus having diagnosis function. 4,335,425, Cl. 364-200.000.
Gough, Patricia M., to Iowa State University Research Foundation, Inc. Specific antigen vaccine for TGE in swine. 4,335,105, Cl. 424-89.000.
Gozzi, Antonio. Four-stage gas compressor. 4,334,833, Cl. 417-258.000.
Graat, Johannes W.; and Remie, Hans J., to Smit Ovens Nijmegen B.V. Method of controlling the combustion of liquid fuel. 4,334,854, Cl. 431-8.000.
Grab, Martin. Machine for dispensing bulk merchandise. 4,334,635, Cl. 221-194.000.
Gracia, Robert F.: *See*—
Fromson, Howard A.; and Gracia, Robert F., 4,334,769, Cl. 355-100.000.
Graf, Walter: *See*—
Kohnert, Hans J.; Graf, Walter; Jaki-Banka, Ladislaus; and Rohrle, Manfred, 4,334,507, Cl. 123-193.00P.
Grana, David C.: *See*—
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Granatek, Alphonse P.: *See*—
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Granda, Edward J.: *See*—
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.
Grandell, William A., to Siegrand Corporation. Portable strip steel camber straightening machine. 4,334,418, Cl. 72-164.000.
Granlund, Per, to A/S Moelven Brug. Apparatus for cutting and splitting logs. 4,334,562, Cl. 144-193.00A.
Grassl, Hans-Peter, to Siemens Aktiengesellschaft. Circuit for sensor-controlled telemetry. 4,335,317, Cl. 250-578.000.
Grauso, Robert N. Suspension band drum. 4,334,458, Cl. 84-411.00R.
Graves, Kenny M.: *See*—
Brady, Jack D.; and Graves, Kenny M., 4,334,897, Cl. 55-257.0PV.
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, to Cassella Aktiengesellschaft. 1-Acyl-8-(3-amino-2-hydroxypropoxy)-1,2,3,4-tetrahydroquinolines, compositions and use. 4,335,123, Cl. 424-246.000.
Gray, Joseph E.: *See*—
Schwan, Thomas J.; and Gray, Joseph E., 4,335,130, Cl. 424-258.000.
Gray, Lew T., to Phillips Petroleum Company. Method and apparatus for covering a pipeline. 4,334,801, Cl. 405-157.000.
Great Lakes Carbon Corporation: *See*—
Hsu, Harry L., 4,334,980, Cl. 208-125.000.
Green Cross Corporation, The: *See*—
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.
Green, Norman W., to Occidental Petroleum Corporation. Mixing method and apparatus. 4,334,959, Cl. 201-12.000.
Greenwood, James R. Low protein degradation product basal medium for identification of non-fermentative gram-negative bacilli and other microorganisms. 4,335,205, Cl. 435-34.000.
Gref, Hans: *See*—
Wilke, Werner; Gref, Hans; and Frenken, Hans, 4,334,884, Cl. 23-293.00R.
Gregg, David W., to United States of America, Energy. Method for gasification of deep, thin coal seams. 4,334,579, Cl. 166-256.000.
Gregorian, Razmic S.; and Namboodri, Chettoor G., to United Merchants & Manufacturers Inc. Fabric treatment compositions. 4,334,877, Cl. 8-477.000.
Greiner, Norman R.: *See*—
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.
Grether, Paul, to Sulzer Brothers Limited. Insulating element for a multi-paned window. 4,334,398, Cl. 52-789.000.

Greuter, Hans: *See—*
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Grier, Jesse G.; and Hodges, Jimmie R., to Pennwalt Corporation. Chromate ion removal from aqueous solutions. 4,335,000, Cl. 210-662.000.
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., to Merck & Co., Inc. 2-Substituted-aminopropene-and propanenitrile antimicrobial and anti-inflammatory agents. 4,335,141, Cl. 424-304.000.
Griessbaum, Karl: *See—*
Frohlich, Alfons; and Griessbaum, Karl, 4,334,556, Cl. 139-384.00B.
Griesser AG: *See—*
Frei, Paul, 4,334,572, Cl. 160-170.000.
Gross, Josef: *See—*
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Gross, Paul; and Kleeli, Ruedi, to Georg Fischer Aktiengesellschaft. Apparatus for centrifugal molding of concrete pipe. 4,334,848, Cl. 425-262.000.
Grossfeld, Michael J.: *See—*
Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., 4,335,103, Cl. 424-59.000.
Grumman Aerospace Corporation: *See—*
Pernick, Benjamin J., 4,334,780, Cl. 356-359.000.
Grunert, Hans C., to Sybron Corporation. Dental cabinet. 4,334,723, Cl. 312-209.000.
Gsell, Laurenz: *See—*
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.
GTE Laboratories Incorporated: *See—*
Buhrer, Carl F.; and Feuersanger, Alfred E., 4,334,628, Cl. 220-2.10R.
GTE Products Corporation: *See—*
Broadt, David R.; and Audesse, Emery G., 4,334,856, Cl. 431-359.000.
Latassa, Frank M.; Ray, John G.; and Roy, Joseph A., 4,335,326, Cl. 313-177.000.
Seidel, Heinz H., 4,334,808, Cl. 407-114.000.
Guerit, Pierre: *See—*
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, 4,334,990, Cl. 210-186.000.
Guha, Probir K.: *See—*
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., 4,334,563, Cl. 145-2.00R.
Guida, Frank C. Method for generating heat energy by intermittent smoke charge combustion. 4,334,485, Cl. 110-347.000.
Guidote, Armando E.: *See—*
Alegre, Adolfo P.; Guidote, Armando E.; and Puyat, Alfonso G., 4,335,060, Cl. 261-23.00R.
Guillaume, Claude A.: *See—*
Allart, Pierre J.; and Guillaume, Claude A., 4,335,013, Cl. 252-364.000.
Gulf Canada Limited: *See—*
Roberge, Serge; and Normand, Jacques, 4,335,265, Cl. 373-83.000.
Gulf Oil Corporation: *See—*
Hedrich, Loren W., 4,335,044, Cl. 548-475.000.
Guttinger, Manfred; and Schermutzki, Konrad, to Sandvik Conveyor GmbH. Double belt press. 4,334,468, Cl. 100-93.0RP.
H. H. Robertson Company: *See—*
Haskins, Paul L., 4,335,269, Cl. 174-48.000.
Haar, Lucas H.: *See—*
Riedel, Peter; and Haar, Lucas H., 4,334,459, Cl. 91-369.00B.
Haas, Gerhard J.: *See—*
Wiener, Claire; and Haas, Gerhard J., 4,335,143, Cl. 426-50.000.
Haavik, Harold K., to Nash Engineering Company, The. Two-stage liquid ring pump with improved intrastage and interstage sealing means. 4,334,830, Cl. 417-68.000.
Habdas, Edward P.; and Aaron, Jon D., to UOP Inc. Method of making solid electrolyte oxygen sensor with integral heater. 4,334,940, Cl. 156-89.000.
Hackman, James M.: *See—*
Hackman, La Vona R.; and Hackman, James M., 4,334,573, Cl. 160-180.000.
Hackman, La Vona R.; and Hackman, James M. Pet access door kit and method of installation. 4,334,573, Cl. 160-180.000.
Hagar, Donald K.: *See—*
Connor, Peter J.; and Hagar, Donald K., 4,334,550, Cl. 137-242.000.
Hagen, Rolf: *See—*
Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, 4,335,456, Cl. 370-58.000.
Hagopian, John G., to Anaconda Company, The. Interconnecting lock construction for siding, soffits and related construction elements. 4,334,396, Cl. 52-522.000.
Hajek, Thomas J., II; and Lorimor, Larry W., to Caterpillar Tractor Co. Resettable valve spool with kick-out member. 4,334,553, Cl. 137-625.660.
Halcon Research and Development Corp.: *See—*
Rizkalla, Nabil, 4,335,058, Cl. 260-546.000.
Rizkalla, Nabil, 4,335,059, Cl. 260-549.000.
Halcon SD Group, Inc., The: *See—*
Kochar, Nand K.; and Marcell, Richard L., 4,334,890, Cl. 44-53.000.
Hall, Gregory G. Casing hanger and stabilizer. 4,334,342, Cl. 24-263.00D.
Hall, John F., to Chrysler Corporation. Fuel-water separator with piston-check valve water disposal to evaporator. 4,334,989, Cl. 210-114.000.
Hall, Peter S., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Stripline antennas. 4,335,385, Cl. 343-700.0MS.
Halliburton Services: *See—*
Baker, Eugene E.; and Carter, Ernest E., Jr., 4,334,582, Cl. 166-355.000.
Ham, Young S. Simulated ball sport amusement instrument. 4,334,682, Cl. 273-85.00E.
Hamacher, Edward N. Method for administering a dissociative, unconscious type of anesthesia. 4,334,526, Cl. 128-1.00R.
Hamada, Kazuhiko; Suzukamo, Goufu; and Fujisawa, Koichi, to Sumitomo Chemical Company, Limited. Process for producing 5-methylfurfural. 4,335,049, Cl. 549-483.000.
Hamisch, Paul H., Jr., to Monarch Marking Systems, Inc. Print head with endless bands and spacer. 4,334,470, Cl. 101-111.000.
Hammann, Ingeborg: *See—*
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, 4,335,134, Cl. 424-273.00P.
Hammerslag, Julius G. Battery charging system. 4,334,819, Cl. 414-395.000.
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, to Canon Kabushiki Kaisha. Process for recording. 4,335,198, Cl. 430-348.000.
Hanadate, Hitoshi: *See—*
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.
Hanamura, Shoji: *See—*
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, 4,335,406, Cl. 358-213.000.
Hanamura, Takeo: *See—*
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.
Handl, Werner, to Staedtler, J. S. Eraser and process for its manufacture. 4,335,033, Cl. 524-525.000.
Haneda, Takashi: *See—*
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.
Hansen, Christian B.; and Flagstad, Carl D., to Danfoss A/S. Gerotor machine with valve plates attached to wheel gear. 4,334,843, Cl. 418-61.00B.
Hansen, John A.; and Hogh, Steen. Device for metering the angular position of a direction indicator. 4,334,430, Cl. 73-189.000.
Haque, Yusuf A., to American Microsystems, Inc. CMOS Operational amplifier with reduced power dissipation. 4,335,355, Cl. 330-253.000.
Hara, Akio; and Yazu, Shuji, to Sumitomo Electric Industries, Ltd. Sintered compact for a machining tool and a method of producing the compact. 4,334,928, Cl. 75-238.000.
Hara, Kenichi: *See—*
Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, 4,335,369, Cl. 338-34.000.
Hara, Takanori; and Shimamura, Yoshihiro, to Toyo Kogyo Co., Ltd.; and ASMO Co., Ltd. Electric reversible motor control. 4,335,340, Cl. 318-282.000.
Hara, Toshitami: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.
Harada, Tatsuo: *See—*
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.
Harbaugh, Willis E., to RCA Corporation. Sputter-ion pump for use with electron tubes having thoriated tungsten cathodes. 4,334,829, Cl. 417-49.000.
Harbeck, Martin E.; and Harbin, Henry C., to Singer Company, The. Surface cleaning vacuum nozzle. 4,334,336, Cl. 15-322.000.
Harbin, Henry C.: *See—*
Harbeck, Martin E.; and Harbin, Henry C., 4,334,336, Cl. 15-322.000.
Hardwick, John P.; Pezet, Michael J.; Sarvestany, Asadollah A.; and Satharasinghe, Dayananda. Shredding machines. 4,334,650, Cl. 241-236.000.
Hareng, Michel; and Le Berre, Serge, to Thomson-CSF. Optical apparatus for the reproduction of images using a liquid crystal cell. 4,334,734, Cl. 350-331.00R.
Hareng, Michel; and Le Berre, Serge, to Thomson-CSF. Thermo-optic liquid-crystal device for real-time display of animated images. 4,334,735, Cl. 350-351.000.
Harrell, Robert E.; Harrell, Tedd L.; and Parker, Edward H., to Western Litho Plate & Supply Co. Apparatus and method for processing lithographic plates. 4,334,755, Cl. 354-299.000.
Harrell, Tedd L.: *See—*
Harrell, Robert E.; Harrell, Tedd L.; and Parker, Edward H., 4,334,755, Cl. 354-299.000.
Harris Corporation: *See—*
Campbell, Henry J., 4,334,646, Cl. 228-180.00A.
Clifton, Kenneth C., 4,334,673, Cl. 271-65.000.
Harris, David E.: *See—*
Foster, George B.; and Harris, David E., 4,335,468, Cl. 455-67.000.
Harris, Robert L.: *See—*
Scott, Charles G.; Robertson, James B.; and Harris, Robert L., 4,335,281, Cl. 179-156.00A.

Harris Video Systems, Inc.: *See—*
Pearson, Gilbert J., 4,335,393, Cl. 358-4.000.
Harrison, Marvin H.; and Dancy, William B., to International Minerals & Chemical Corp. Production of potassium chloride from langbeinite. 4,334,885, Cl. 23-300.000.
Hartley, Harry F.: *See—*
Tharp, Nelson B.; and Hartley, Harry F., 4,335,469, Cl. 455-125.000.
Hartman, Walter C.: *See—*
Amin, Ramesh G.; Hartman, Walter C.; and Husk, Robert V., 4,334,731, Cl. 339-144.00T.
Hartwig, Edward L. Fishing pole holder. 4,334,377, Cl. 43-17.000.
Harvey, Donald M., to Eastman Kodak Company. Camera with film thread indicating mechanism. 4,334,753, Cl. 354-289.000.
Harvill, William A.: *See—*
Fessler, Herman S.; Credle, William S., Jr.; and Harvill, William A., 4,334,838, Cl. 417-395.000.
Hasegawa, Naruo: *See—*
Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, 4,334,937, Cl. 148-12.00R.
Hashimoto, Teiji: *See—*
Shimada, Fumio; and Hashimoto, Teiji, 4,334,747, Cl. 354-147.000.
Hashimoto, Yasuo: *See—*
Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, 4,335,291, Cl. 219-10.55E.
Hashimoto, Yoshiro: *See—*
Horino, Shigeo; and Hashimoto, Yoshiro, 4,334,619, Cl. 209-551.000.
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, to Kyowa Hakko Kogyo Co., Ltd. Process for producing optically active cephalosporin analogs. 4,335,211, Cl. 435-119.000.
Haskins, Paul L., to H. H. Robertson Company. Isolator device and wire distributing system utilizing the same. 4,335,269, Cl. 174-48.000.
Haslbeck, Joseph, to Highland Mfg. Company Ltd. Electrical box. 4,335,271, Cl. 174-65.00R.
Hassell, Donald S. Indicia-bearing adhesive bandages. 4,334,530, Cl. 128-156.000.
Hasson, Victor H.; and Von Bergmann, Hubertus M., to South African Inventions Development Corporation, The. Apparatus and method for generating a glow discharge. 4,335,462, Cl. 372-85.000.
Hastings, Edward E. Insulated dust control apparatus for use in an explosive environment. 4,335,419, Cl. 361-228.000.
Hatanaka, Masayuki; and Kurita, Atsushi, to Toshiba Silicone Co., Ltd. Silicone rubber composition. 4,335,035, Cl. 523-212.000.
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, to Kurosaki Refractories Co., Ltd. SiC-Si_3N_4 Composite system for special heat-resisting ceramic materials and its fabrication method. 4,335,217, Cl. 501-92.000.
Haubert, Thomas R., to Supreme Casting & Tooling. Apparatus for blow molding a hollow plastic article having a relatively wide neck. 4,334,852, Cl. 425-525.000.
Hauni-Werke Korber & Co. K.G.: *See—*
Hinz, Werner; and Hausler, Nikolaus, 4,334,449, Cl. 83-342.000.
Hauser, Donald P., to C. W. Zumbiel Co., The. Dispenser carton. 4,334,644, Cl. 225-43.000.
Hauser, Hans; and Clayborne, William J., to J. B. Foote Foundry Co., The. Transaxle. 4,334,719, Cl. 308-121.000.
Hausler, Nikolaus: *See—*
Hinz, Werner; and Hausler, Nikolaus, 4,334,449, Cl. 83-342.000.
Haven, Duane A., to Tektronix, Inc. Selectively erasable storage target with insulated web collector. 4,335,328, Cl. 313-395.000.
Hay, Cal W.: *See—*
Rader, William W., 4,334,794, Cl. 401-50.000.
Hayase, Shuzi: *See—*
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.
Hayashi, Masaharu: *See—*
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Hayashi, Satoshi: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.
Hazan, Isidor, to Du Pont de Nemours, E. I., and Company. Electrocoating composition with polyhydroxyamine and polybutadiene. 4,335,031, Cl. 524-504.000.
Hazard, Richard: *See—*
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.
Heady, Robert E., to CPC International Inc. Process for the production of high fructose syrups and ethanol. 4,335,207, Cl. 435-94.000.
Heaviside, John W., to Marconi Company Limited, The. Power combining or dividing arrangements. 4,335,347, Cl. 323-328.000.
Heckmaier, Manfred: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.
Hedgepeth, John M.; Samuels, Ronald L.; and Stammreich, John, to Astro Research Corporation. Redundant deployable lattice column. 4,334,391, Cl. 52-108.000.
Hedrich, Loren W., to Gulf Oil Corporation. Plant growth regulating perfluoroacyl arylthioureido isoindolediones. 4,335,044, Cl. 548-475.000.
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., to Janssen Pharmaceutica, N.V. 1-(1,3-Dioxolan-2-ylmethyl)-1H-imidazoles. 4,335,125, Cl. 424-250.000.
Hefling, Dennis V., to Coleman Company, Inc., The. Gas-fired cooking apparatus. 4,334,462, Cl. 99-385.000.
Heidelberger Druckmaschinen Aktiengesellschaft: *See—*
Becker, Willi; and Wirz, Arno, 4,334,473, Cl. 101-409.000.
Heidkamp, Madeleine: *See—*
Bauer, Russell H.; and Heidkamp, Madeleine, 4,335,433, Cl. 364-443.000.
Height Inc.: *See—*
Shinriki, Tatsuo, 4,334,464, Cl. 99-450.600.
Heimark, Edward L.: *See—*
Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.
Heller, Patricia S.; and Heller, Stephen M. Screen and shelving system. 4,334,571, Cl. 160-135.000.
Heller, Stephen M.: *See—*
Heller, Patricia S.; and Heller, Stephen M., 4,334,571, Cl. 160-135.000.
Hellige, GmbH: *See—*
Leist, Helmut; and Ullrich, Georg J., 4,334,541, Cl. 128-632.000.
Hemery, Andre, to Allibert Exploitation. Method of moulding containers from at least two different plastic materials, machine for carrying out this method and containers obtained thereby. 4,335,068, Cl. 264-245.000.
Henberg Oy: *See—*
Tamminen, Teijo T. T., 4,334,845, Cl. 425-104.000.
Hendrickson, Richard T.: *See—*
Brown, Arthur K.; Hendrickson, Richard T.; and Ewald, Jerome T., 4,334,832, Cl. 417-218.000.
Hengel, Rolf; and Eaton, David F., to Du Pont de Nemours, E. I., and Company. Tetraazaundecane and complexes as sensitizers for silver halide emulsion. 4,335,202, Cl. 430-604.000.
Henkel Kommanditgesellschaft auf Aktien: *See—*
Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, 4,335,024, Cl. 252-545.000.
Kluth, Hermann; Bachmann, Robert; and Wegner, Jurgen, 4,334,787, Cl. 366-162.000.
Henkin, Melvyn L. Breathing method and apparatus for simulating high altitude conditions. 4,334,533, Cl. 128-205.280.
Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, to Henkel Kommanditgesellschaft auf Aktien. Liquid detergent compositions comprised of mixtures of alkyl polyglycol ethers and quaternary ammonium compounds. 4,335,024, Cl. 252-545.000.
Henrion, Romain: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.
Herbert Kannegiesser GmbH & Co.: *See—*
Juraschek, Richard, 4,334,496, Cl. 118-679.000.
Herbert, M. Linton. Wet cornea microscope. 4,334,736, Cl. 350-418.000.
Herchenbach, Horst, to Klockner-Humboldt-Deutz AG. System and method for the heat treatment of fine grained materials. 4,334,860, Cl. 432-14.000.
Hewett, Thomas A.: *See—*
McCullough, Robert W.; and Hewett, Thomas A., 4,334,524, Cl. 126-449.000.
Hewlett-Packard Company: *See—*
Gort, Alfred F.; and Moore, Charles E., 4,335,306, Cl. 250-231.0SE.
Ramsay, Michael; and Pratt, Warren, 4,335,333, Cl. 315-371.000.
Hicter, Jean-Marie: *See—*
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, 4,334,990, Cl. 210-186.000.
Hida, Tsuneo: *See—*
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.
Hiester, Kenneth R.: *See—*
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.
Highland Mfg. Company Ltd.: *See—*
Haslbeck, Joseph, 4,335,271, Cl. 174-65.00R.
Hikawa, Masanori: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.
Hill, Edwin R.: *See—*
DeVries, Richard C.; and Hill, Edwin R., 4,335,307, Cl. 250-322.000.
Hill, Loran R.; and Titcomb, Steven E., to AMF Incorporated. Ear lobe clip with heart beat sensor. 4,334,544, Cl. 128-664.000.
Hill, Robert E., to Koppers Company, Inc. Water repellent aqueous wood treating solutions. 4,335,109, Cl. 424-140.000.
Hindin, Saul G.: *See—*
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.
Hinz, Werner; and Hausler, Nikolaus, to Hauni-Werke Korber & Co. K.G. Apparatus for severing paper webs or the like. 4,334,449, Cl. 83-342.000.
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, to Nihon Nohyaku Co., Ltd. Benzoate derivative, method of preparing the same and use thereof as a herbicide. 4,334,914, Cl. 71-100.000.
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, to Nihon Nohyaku Co. Ltd. Phenoxyphthalates and herbicide containing the same. 4,334,915, Cl. 71-108.000.

Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, to Nippon Steel Corporation. Converter steelmaking process. 4,334,921, Cl. 75-60.000.

Hirata, Atsuro: *See*—
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, 4,335,407, Cl. 358-284.000.

Hirata, Tadashi: *See*—
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.

Hirata, Tetsuhiko: *See*—
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Hirayama, Masao: *See*—
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.

Hirschmann, Peter, to Siemens Aktiengesellschaft. Method and apparatus for four-wire type transmission of digital message signals. 4,335,455, Cl. 370-29.000.

Hirt, Dieter; Steigenberger, Richard; and Meinke, Peter, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Coupling bearing for rotors above critical speed. 4,334,718, Cl. 308-10.000.

Hisamitsu Pharmaceutical Co. Inc.: *See*—
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.

Hitachi, Ltd.: *See*—
Fujioka, Kazumasa; and Nakayama, Wataru, 4,335,324, Cl. 310-61.000.
Fukuzawa, Kenichi; and Kumazawa, Tetsuo, 4,335,329, Cl. 313-406.000.
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, 4,335,425, Cl. 364-200.000.
Ogasawara, Hitoshi, 4,335,341, Cl. 318-624.000.
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, 4,335,406, Cl. 358-213.000.
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.
Takahashi, Junichi, 4,335,431, Cl. 364-426.000.
Watanabe, Yoshio; Yamane, Mikiya; and Tomura, Teruichi, 4,335,331, Cl. 315-334.000.

Hitt, Franz A. Technique for handling and treating heavy waste hydrocarbons. 4,334,605, Cl. 196-46.000.

Hitt, Mary M.: *See*—
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.

Hitz, George R. Masonry structure and apparatus and process for spacing block in the structure. 4,334,397, Cl. 52-687.000.

Hoagland, Carolyn S., to Iowa State University Research Foundation, Inc. Curling eye heddle. 4,334,555, Cl. 139-95.000.

Hodder, James J.: *See*—
Beier, William C.; and Hodder, James J., 4,334,876, Cl. 8-94.19C.

Hodges, Jimmie R.: *See*—
Grier, Jesse G.; and Hodges, Jimmie R., 4,335,000, Cl. 210-662.000.

Hodgkins, Charles E.; and Giermek, Mark J., to TAM Ceramics, Inc. Low temperature fired dielectric ceramic composition and method of making same. 4,335,216, Cl. 501-32.000.

Hoechst Aktiengesellschaft: *See*—
Alfranseder, Josef; Mayer, Sigmund; Rebsdat, Siegfried; Riedl, Josef; and Schaffelhofer, Iwo, 4,335,014, Cl. 252-412.000.
Back, Gunter; and Schon, Klaus-Peter, 4,334,472, Cl. 101-382.0MV.
Rieck, Hans-Peter; and Russow, Jurgen, 4,335,085, Cl. 423-300.000.
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, 4,334,969, Cl. 204-158.00R.
Wiezer, Hartmut; and Pfahler, Gerhard, 4,335,242, Cl. 544-198.000.

Hoechst-Roussel Pharmaceuticals Inc.: *See*—
McFadden, Arthur R.; and Aultz, Daniel E., 4,335,122, Cl. 424-244.000.

Hoeft, Werner H., to Signetics Corporation. Class "B" type amplifier. 4,335,358, Cl. 330-255.000.

Hoffmann-La Roche Inc.: *See*—
Chan, Ka-Kong; and Pawson, Beverly A., 4,335,248, Cl. 549-78.000.
Fehr, Rainer, 4,334,543, Cl. 128-663.000.
Holick, Michael F.; and Uskokovic, Milan R., 4,335,120, Cl. 424-236.000.
Niemczyk, Henry J., 4,335,042, Cl. 260-239.0BD.

Hogh, Steen: *See*—
Hansen, John A.; and Hogh, Steen, 4,334,430, Cl. 73-189.000.

Holce, Thomas J.; and Huckins, Charles M., to Sentrol, Inc. Switch housing incorporating flexibly attached mounting plate. 4,335,270, Cl. 174-52.00R.

Holdegraver, Robert E.: *See*—
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., 4,334,934, Cl. 127-9.000.

Holfelder, Gerhard: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Holick, Michael F.; and Uskokovic, Milan R., to Hoffmann-La Roche Inc. Administration of biologically active vitamin D_3 and vitamin D_2 materials. 4,335,120, Cl. 424-236.000.

Hollfelder, Thomas A.; and De Luca, Paul V., to Porta Systems Corp. Telephone protector module having flag indicator. 4,335,416, Cl. 361-119.000.

Holloway, Richard L.; Miller, John A.; and Winters, Jerald E., to Atlantic Richfield Company. Coker blow down recovery system. 4,334,981, Cl. 208-131.000.

Holly, James A., to Hollymatic Corporation. Mold device with movable compression insert. 4,334,339, Cl. 17-32.000.

Hollymatic Corporation: *See*—
Holly, James A., 4,334,339, Cl. 17-32.000.

Holmes, David D., to RCA Corporation. Information transmission during first-equalizing pulse interval in television. 4,335,402, Cl. 358-147.000.

Holt, Harley R., to Bunker Ramo Corporation. Apparatus for assembling electrical cables to electrical connectors. 4,334,353, Cl. 29-753.000.

Holzenberger, Kurt, to Klein, Schanzlin & Becker Aktiengesellschaft. Method of transporting flowable media of changing consistencies. 4,334,370, Cl. 37-195.000.

Holzer, Helmut; and von Arndt, Ernst M., to Carl Freudenberg, Firma. Shaft seal with multi-slitted sleeve. 4,334,687, Cl. 277-151.000.

Homco International Inc.: *See*—
Stephen, David D., 4,335,352, Cl. 324-228.000.

Homeyer, Bernhard: *See*—
Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, 4,335,134, Cl. 424-273.00P.

Homma, Hiroshige: *See*—
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.

Homura, Kanematsu. Bucket system provided with tilting means applicable to fork lift. 4,334,820, Cl. 414-607.000.

Honda Giken Kogyo Kabushiki Kaisha: *See*—
Asakura, Toshimitsu; and Noda, Azusa, 4,334,589, Cl. 180-219.000.
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, 4,334,511, Cl. 123-454.000.
Ohmori, Taiji; and Sato, Makoto, 4,335,430, Cl. 364-426.000.

Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, to Canon Kabushiki Kaisha. Electrophotographic copying apparatus. 4,334,763, Cl. 355-8.000.

Honeywell Inc.: *See*—
Acker, William F., 4,335,361, Cl. 330-285.000.
Nelson, Lorne W., 4,334,855, Cl. 431-20.000.

Hooberry, William D. Antenna lightning arrestor. 4,335,415, Cl. 361-104.000.

Hoover, Merle V. Class AB push-pull amplifiers. 4,335,360, Cl. 330-264.000.

Hopkins, Melvyn D., to Westinghouse Electric Corp. Gas insulated transmission line including provisions for minimizing particle generation. 4,335,267, Cl. 174-14.00R.

Hopkins, Michael F.; and Mayerchin, Alvin D., to Caterpillar Tractor Co. Universal coupling spider bearing and yoke. 4,334,415, Cl. 464-130.000.

Horeschi, Giancarlo: *See*—
Barozzi, Gian P.; and Horeschi, Giancarlo, 4,334,791, Cl. 400-166.000.

Horino, Shigeo; and Hashimoto, Yoshiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for processing paper sheets. 4,334,619, Cl. 209-551.000.

Horner, Patrick J., to Imperial Chemical Industries Limited. Polyester compositions, shaped articles obtained from them and processes for preparing them. 4,335,046, Cl. 549-392.000.

Horvath, Tibor: *See*—
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Hosaka, Hideaki; and Kuri, Setuya, to Chlorine Engineers Corp.; and Kun Chemical Engineers. Low temperature food drying process. 4,335,150, Cl. 426-465.000.

Hosaka, Hiroshi, to Tokyo Magnetic Printing Co., Ltd. Magnetic recording medium and method of fabricating it. 4,335,183, Cl. 428-336.000.

Hosoi, Masaaki: *See*—
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Hosoya, Nobukazu, to Sanyo Electric Co., Ltd. Horizontal scanning circuit. 4,335,334, Cl. 315-408.000.

Hospal Medical Corp.: *See*—
Milligan, Lee J., 4,334,988, Cl. 210-87.000.

Howard, James R., to University Patents, Inc. Mineral-containing therapeutic compositions. 4,335,116, Cl. 424-201.000.

HR Textron Inc.: *See*—
Blanchard, Robert, 4,334,552, Cl. 137-625.480.

Hsu, Harry L., to Great Lakes Carbon Corporation. Non-puffing petroleum coke. 4,334,980, Cl. 208-125.000.

Hsu, Sheng T.: *See*—
Goldsmith, Norman; and Hsu, Sheng T., 4,334,347, Cl. 29-571.000.

Huber, Guntram, to Daimler-Benz Aktiengesellschaft. Independent front wheel suspension for motor vehicles. 4,334,693, Cl. 280-95.00R.

Huckins, Charles M.: *See*—
Holce, Thomas J.; and Huckins, Charles M., 4,335,270, Cl. 174-52.00R.

Hudault, Gerard: *See*—
Sulmont, Benoit; and Hudault, Gerard, 4,335,064, Cl. 264-30.000.

Hunt, Willard F.; and McCarthy, Robert H., to Technicare Corporation. Method of selecting a preferred difference image. 4,335,427, Cl. 364-414.000.

Husk, Robert V.: *See—*
Amin, Ramesh G.; Hartman, Walter C.; and Husk, Robert V., 4,334,731, Cl. 339-144.00T.

Huss, Albin: *See—*
Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, 4,335,020, Cl. 252-455.00Z.

Hutson, Douglas W.: *See—*
Simmons, John J.; and Hutson, Douglas W., 4,334,460, Cl. 98-83.000.

Hyde, Glenn F.; and Cromwell, John E. Piston ring coatings. 4,334,927, Cl. 75-240.000.

Ibamoto, Masahiko: *See—*
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.

IDC Chemie AG: *See—*
Mader, Karl, 4,334,394, Cl. 52-309.120.

Ide, Hiroyuki: *See—*
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.

Igi, Keishiro; and Masao, Ishii, to Kuraray Company, Limited. Laminates. 4,335,188, Cl. 428-458.000.

Iiyama, Makoto; and Koyama, Yasujiro, to Nippon Kokan Kabushiki Kaisha. Prevention of thermal spalling in ceramic products. 4,334,858, Cl. 432-9.000.

Ikeda, Kenichi: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.

Ikeda, Yoshi; Osada, Kenji; and Doi, Kazumi. Rotary pump with radial yieldable partitions and rotatable side plate. 4,334,842, Cl. 418-45.000.

Ikegami, Tadashi: *See—*
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.

Illinois Tool Works Inc.: *See—*
Knohl, Rudolph E., 4,334,815, Cl. 411-368.000.

Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, to Toa Nenryo Kogyo Kabushiki Kaisha. Catalyst component for polymerization of alpha-olefins and method of using it. 4,335,015, Cl. 252-429.00B.

Imai, Riujiro: *See—*
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, 4,335,425, Cl. 364-200.000.

Impallomeni, Enrico: *See—*
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.

Imperial Chemical Industries Limited: *See—*
Brooks, Herbert; and Waite, Frederick A., 4,334,891, Cl. 44-62.000.
Horner, Patrick J., 4,335,046, Cl. 549-392.000.

Inaba, Naomi: *See—*
Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, 4,335,015, Cl. 252-429.00B.

Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, to Aisin Seiki Kabushiki Kaisha. Diaphragm air pump assembly. 4,334,837, Cl. 417-393.000.

Industrial Tectonics, Inc.: *See—*
Signer, Hans R., 4,334,720, Cl. 308-187.000.

Ingersoll-Rand Company: *See—*
Lindeboom, Herman, 4,334,804, Cl. 405-259.000.

Inoue-Japax Research Incorporated: *See—*
Inoue, Kiyoshi, 4,335,294, Cl. 219-69.00M.
Inoue, Kiyoshi, 4,335,436, Cl. 364-474.000.

Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. EDM Method and apparatus having a gap discharge circuit constructed with limited stray capacitances. 4,335,294, Cl. 219-69.00M.

Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Microprocessor-controlled EDM system. 4,335,436, Cl. 364-474.000.

Inoue, Yoshiyuki: *See—*
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.

Institut Francais du Petrole: *See—*
Jacquin, Yves; and Le Page, Jean-Francois, 4,334,982, Cl. 208-216.00R.

Institut fur Angewandte Physik der Universitat Bern: *See—*
Salathe, Rene P.; Badertscher, E. Gerhard; and Luthy, Willy A. R., 4,335,362, Cl. 372-46.000.

Institut Pasteur: *See—*
Adamowicz, Philippe J.; Platel nee Bonnet, Alberte; and Muller, Ludwig, 4,335,214, Cl. 435-239.000.

Interface Mechanisms, Inc.: *See—*
Palmer, Roger C.; and Purdue, William J., 4,335,301, Cl. 235-462.000.

International Business Machines Corp.: *See—*
Aliotta, Carmelo F.; and Anschel, Morris, 4,335,189, Cl. 428-611.000.
Ameen, Joseph G.; Franchak, Nelson P.; Rasile, John; and Rivenburgh, Dennis L., 4,334,949, Cl. 156-642.000.
Axford, John G., 4,335,390, Cl. 346-158.000.
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,335,460, Cl. 371-49.000.
Clark, Gary A., 4,334,765, Cl. 355-14.0SH.
Crawford, Roy P.; Gilovich, Paul A.; and McMurtry, David H., 4,334,656, Cl. 242-195.000.
Cutler, Robert S.; and Moore, Michael T., 4,334,878, Cl. 524-88.000.
Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., 4,334,792, Cl. 400-279.000.
Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., 4,335,426, Cl. 364-200.000.
Thomas, Donald R., 4,335,450, Cl. 365-182.000.

International Flavors & Fragrances Inc.: *See—*
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,335,009, Cl. 252-187.270.
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.

International Minerals & Chemical Corp.: *See—*
Bushman, Ted E., 4,334,939, Cl. 149-21.000.
Harrison, Marvin H.; and Dancy, William B., 4,334,885, Cl. 23-300.000.

Interzeag AG: *See—*
Seckinger, Erich, 4,334,738, Cl. 351-39.000.
Seckinger, Erich, 4,334,739, Cl. 351-39.000.

Iowa State University Research Foundation, Inc.: *See—*
Gough, Patricia M., 4,335,105, Cl. 424-89.000.
Hoagland, Carolyn S., 4,334,555, Cl. 139-95.000.
Robyt, John F.; and Zikopoulos, John N., 4,335,100, Cl. 424-48.000.

Irwin, Robert S., to Du Pont de Nemours, E. I., and Company. Optically anisotropic melt forming polyesters. 4,335,232, Cl. 528-128.000.

Iscar Ltd.: *See—*
Nessel, Eliezer, 4,334,807, Cl. 407-103.000.

Ishii, Shoichi, to Fuji Xerox Co., Ltd. Automatic feeding device for copying machines. 4,334,674, Cl. 271-245.000.

Ishikura, Yuji: *See—*
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.

Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, to TDK Electronics Co., Ltd. Popped corn making apparatus used in a microwave oven. 4,335,291, Cl. 219-10.55E.

Ishizuka, Hiroshi. Apparatus for electrolytic production of magnesium metal from its chloride. 4,334,975, Cl. 204-247.000.

Ishizuka, Masaaki: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Isomura, Yasuo: *See—*
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.

Ito, Noriki: *See—*
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.

Ito, Takeo: *See—*
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.

ITT Industries, Inc.: *See—*
Riedel, Peter; and Haar, Lucas H., 4,334,459, Cl. 91-369.00B.

Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Gearshift timing control arrangement for automatic power transmission. 4,334,441, Cl. 74-868.000.

Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Shift valve arrangement of hydraulic transmission control system. 4,334,442, Cl. 74-869.000.

Iwanicki, Andrzej T. Splash protection assembly for vehicles equipped with mudguards. 4,334,694, Cl. 280-154.50R.

Iwaosa, Katsuaki: *See—*
Ohashi, Minoru; and Iwaosa, Katsuaki, 4,335,200, Cl. 430-446.000.

Iwasa, Yoshio: *See—*
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.

Izawa, Minoru: *See—*
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.

Izon Corporation: *See—*
Masucci, Carmine, 4,334,741, Cl. 353-38.000.

Izumi, Chikahiko: *See—*
Goto, Humio; Izumi, Chikahiko; and Imai, Riujiro, 4,335,425, Cl. 364-200.000.

J. B. Foote Foundry Co., The: *See—*
Hauser, Hans; and Clayborne, William J., 4,334,719, Cl. 308-121.000.

J. P. Stevens & Co., Inc.: *See—*
Zuckerman, Joseph L.; and Bzik, John W., 4,335,034, Cl. 524-423.000.

J. R. Simplot Company: *See—*
Martin, William E.; and Sumrall, Harold E., 4,334,447, Cl. 83-111.000.

Jablin, Richard. Cooling metal slabs and other metal products. 4,334,505, Cl. 122-27.000.

Jackson, Peter J., to Chubb Panorama Limited. Valves and breathing apparatus incorporating such valves. 4,334,532, Cl. 128-204.260.

Jacob, Richard J.; White, Jack D.; and Richmond, Kenneth D., to Dayco Corporation. Traction assembly. 4,334,569, Cl. 152-221.000.

Jacoby, Walter, to Solar Optimizing Systems, Inc. Solar energy system. 4,334,521, Cl. 126-425.000.

Jacquin, Yves; and Le Page, Jean-Francois, to Institut Francais du Petrole. Process for the selective desulfurization of olefinic cuts. 4,334,982, Cl. 208-216.00R.

Jaedicke, Hagen; and Paust, Joachim, to BASF Aktiengesellschaft. Preparation of cyclic acetals of trans-4-chloro-3-methyl-but-2-en-1-al, and preparation of trans-3-methyl-but-2-ene-1,4-dial-1-monoacetals. 4,335,047, Cl. 549-369.000.

Jakl-Banka, Ladislaus: *See*—
Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, 4,334,507, Cl. 123-193.00P.

Jakovlev, Vladimir: *See*—
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.

James, Donald R., to FMC Corporation. Haloethenylthienylethanones for systemic nematode control. 4,335,137, Cl. 424-275.000.

James G. Brown & Associates, Inc.: *See*—
Dysarz, Edward D., 4,334,802, Cl. 405-196.000.

Janome Sewing Machine Co., Ltd.: *See*—
Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, 4,334,486, Cl. 112-158.00E.

Janssen Pharmaceutica, N.V.: *See*—
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,335,125, Cl. 424-250.000.
Vandenberk, Jan; Kennis, Ludo; Van der Aa, Marcel; and Van Heertum, Albert, 4,335,127, Cl. 424-251.000.

Japan Steel Works, Ltd.: *See*—
Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, 4,334,433, Cl. 73-629.000.

Jayaraman, Anantharman: *See*—
Vidal, Frederick D.; and Jayaraman, Anantharman, 4,335,148, Cl. 426-319.000.

Jenkins, Darrell D.: *See*—
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Jenks, Richard H., to Revere Copper and Brass Incorporated. Methods for lining the internal walls of a conduit for conveying fluid carrying marine fouling organisms with a liner of anti-fouling material. 4,334,345, Cl. 29-157.00R.

Jensen, Keith A., to Smoot, A. Park; and Goodwin, Reese J. Method and apparatus for fabricating studs, joists and the like. 4,334,346, Cl. 29-429.000.

Jensen, Reed J.: *See*—
Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, 4,334,883, Cl. 23-293.00R.

Jensen, Richard V., to Fleetguard, Inc. Disposable fluid filters. 4,334,994, Cl. 210-336.000.

Jerrim, John W., to Sangamo Weston, Inc. Power outage recovery method and apparatus for demand recorder with solid state memory. 4,335,447, Cl. 364-900.000.

Jetsonic Processes, Ltd.: *See*—
Lockwood, Raymond M., 4,334,366, Cl. 34-17.000.

Jibiki, Yubao: *See*—
Jinsenji, Sei; and Jibiki, Yubao, 4,334,751, Cl. 354-288.000.

Jinsenji, Sei; and Jibiki, Yubao, to Ricoh Co., Ltd. Easy-to-load roll-film camera. 4,334,751, Cl. 354-288.000.

Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., to International Business Machines Corporation. Destination-referenced tab, operations for typewriters that store text. 4,334,792, Cl. 400-279.000.

John Fluke Mfg. Co., Inc.: *See*—
Baldock, K. Paul; and Smith, J. Craig, Jr., 4,335,349, Cl. 324-62.000.

Johns, Robert H. Bifilar antenna trap. 4,335,386, Cl. 343-722.000.

Johnsen, Andreas, to Rohm, Pharma GmbH. Quick-acting diuretic compositions. 4,335,119, Cl. 424-229.000.

Johnson, Bruce K.; and Finnemore, Fred M., to Polaroid Corporation. Method of camera manufacture and camera apparatus. 4,334,752, Cl. 354-288.000.

Johnson & Johnson: *See*—
Beede, Charles H.; and Zirnite, Richard N., 4,335,158, Cl. 427-2.000.

Johnson & Johnson Baby Products Company: *See*—
Chase, Richard A.; Simpson, Danny E.; and Williams, David M., 4,334,382, Cl. 46-1.00R.

Johnson & Johnson Products Inc.: *See*—
Balinth, Ivan J., 4,335,026, Cl. 524-271.000.

Johnson, Leroy E.: *See*—
Argoudelis, Alexander D.; Marshall, Vincent P.; and Johnson, Leroy E., 4,335,108, Cl. 424-117.000.

Johnson, Wayne O.; and Yih, Roy Y., to Rohm and Haas Company. Herbicidal diphenyl ethers, sulfides, sulfoxides and sulfones. 4,335,249, Cl. 560-11.000.

Jolivet, Christiane. Fixture for attaching the wishbone to the mast of a sail-board. 4,334,488, Cl. 114-39.000.

Jones, John A.: *See*—
Ayes, Adolfo V.; and Jones, John A., 4,334,901, Cl. 55-487.000.

Jones, Robert W., to United States of America, Army. Holographic plate exposure meter. 4,334,776, Cl. 356-218.000.

Jos. Hunkeler AG Fabrik fur graphische Maschinen: *See*—
Felix, Willi, 4,334,672, Cl. 270-53.000.

Jost, Richard P., to McCabe Powers Body Company. Aerial device. 4,334,594, Cl. 182-2.000.

Joubert, Raymond J. M.: *See*—
Bouiller, Jean G.; and Joubert, Raymond J. M., 4,334,827, Cl. 416-220.00R.

Joy Manufacturing Company: *See*—
LaPointe, Roland R., 4,334,408, Cl. 60-423.000.

Juers, Daniel F.: *See*—
Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., 4,335,199, Cl. 430-434.000.

Juhn, Steven K. Aspirator for collecting liquid samples. 4,334,538, Cl. 128-276.000.

Juraschek, Richard, to Herbert Kannegiesser GmbH & Co. Apparatus for rigidifying textile pieces by coating with plastics. 4,334,496, Cl. 118-679.000.

Kabi AB: *See*—
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,335,204, Cl. 435-23.000.

Kabushiki Kaisha Sato: *See*—
Sato, Yo, 4,335,172, Cl. 428-42.000.

Kabushiki Kaisha Suwa Seikosha: *See*—
Yamada, Haruyoshi, 4,335,454, Cl. 368-220.000.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See*—
Yoshizawa, Toshio; Suzuki, Osamu; and Yoshida, Yoshiaki, 4,334,403, Cl. 57-263.000.

Kackos, Edward M., to Vernitron Corporation. Door seal for sterilizer. 4,335,075, Cl. 422-112.000.

Kada, Takeo: *See*—
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.

Kador, Ulrich. Launching sheet for windsurfers. 4,334,874, Cl. 441-74.000.

Kadymir, Jack. Power transmission device for plural power-driven hand-held tools. 4,334,439, Cl. 74-665.0GA.

Kakinuma, Toshihide: *See*—
Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, 4,334,486, Cl. 112-158.00E.

Kalt, H. Worthington. Spaghetti eating utensil. 4,334,355, Cl. 30-322.000.

Kambic, Raymond V., to Brink's Locking Systems, Inc. Door position monitoring assembly. 4,334,388, Cl. 49-14.000.

Kaminow, Ivan P.: *See*—
Glass, Alastair M.; Kaminow, Ivan P.; and Olson, Donald H., 4,334,774, Cl. 356-152.000.

Kamogawa, Nin-ichi: *See*—
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, 4,335,196, Cl. 430-122.000.

Kamoshita, Katsuzo: *See*—
Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, 4,334,912, Cl. 71-94.000.

Kanazawa, Takato: *See*—
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, 4,335,293, Cl. 219-10.55B.

Kane, Gary, to Lucas Industries Limited. Dusting apparatus. 4,334,494, Cl. 118-63.000.

Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
Somemiya, Akiyoshi; Miyashita, Shunitsu; and Azuma, Masaaki, 4,335,233, Cl. 528-211.000.

Kaneko, Shigeo: *See*—
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Kanemaru, Kiyoshi: *See*—
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Kanoto, Masanobu, to Canon Kabushiki Kaisha. Paper splicer with upstream splicing table. 4,334,946, Cl. 156-352.000.

Kaplan, Murray A.; and Granatek, Alphonse P., to Bristol-Myers Company. Monolactate salts of 4'-(9-acridinylamino)methanesulfon-m-anisidide. 4,335,244, Cl. 546-106.000.

Kardon Industries, Inc.: *See*—
Elston, Jay T., 4,334,487, Cl. 413-6.000.

Karpisek, Ladislay S. Retainer for growth supporting medium. 4,334,387, Cl. 47-83.000.

Kasai, Masanao: *See*—
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.

Kastrubin, Eduard M. Method of affecting central nervous system by pulse currents. 4,334,525, Cl. 128-1.00C.

Katayama Chemical Works Co. Ltd.: *See*—
Katayama, Sakae; and Umekawa, Osamu, 4,334,957, Cl. 162-161.000.

Katayama, Sakae; and Umekawa, Osamu, to Katayama Chemical Works Co. Ltd.; and Yoshitomi Pharmaceutical Industries Ltd. Microbicidal compositions for industrial use. 4,334,957, Cl. 162-161.000.

Katayama, Yoshihiko: *See*—
Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, 4,335,229, Cl. 526-122.000.

Kathryn Wallace and Philadelphia National Bank, executors: *See*—
Wallace, Bernard E., deceased, 4,334,480, Cl. 104-126.000.

Katoh, Haruhiko: *See*—
Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, 4,334,912, Cl. 71-94.000.

Katsunuma, Tatsuo: *See*—
Mabuchi, Kenichi; and Katsunuma, Tatsuo, 4,335,318, Cl. 290-31.000.

Katsura, Yuji: *See*—
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.
Kaufman, Charles D.: *See*—
Reinert, Raymond L.; and Kaufman, Charles D., 4,334,881, Cl. 23-230.00A.
Kawabata, Yasuhiro: *See*—
Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, 4,334,837, Cl. 417-393.000.
Kawabe, Motoyuki, to Taiyo Sengu Co., Ltd. Anchor winch equipment. 4,334,670, Cl. 254-346.000.
Kawahara, Jiro: *See*—
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, 4,334,511, Cl. 123-454.000.
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, to Nippon Soken, Inc.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Knock detecting apparatus. 4,334,422, Cl. 73-35.000.
Kawakatsu, Shiro, to Daihatsu Motor Co., Ltd. Control apparatus for engine/electric hybrid vehicle. 4,335,429, Cl. 364-424.000.
Kawamoto, Mutsumi: *See*—
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.
Kawasaki, Hajime: *See*—
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.
Kawase, Masaaki: *See*—
Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, 4,334,733, Cl. 350-96.330.
Kawashima, Hirokuni: *See*—
Nishigaki, Yuji; and Kawashima, Hirokuni, 4,335,195, Cl. 430-94.000.
Kayaba Kogyo Kabushiki Kaisha: *See*—
Teruyama, Hideo, 4,334,840, Cl. 418-1.000.
Kazuaki, Tagawa: *See*—
Mitsuo, Tanaka; Kazuaki, Tagawa; and Takashi, Yano, 4,335,420, Cl. 361-230.000.
Kearney & Trecker Corporation: *See*—
Stegemeyer, Noel J.; and Naker, Vernon W., 4,334,363, Cl. 33-185.00R.
Kent, Paul P., to Norton Company. Glass bonded abrasive tool containing metal clad graphite. 4,334,895, Cl. 51-309.000.
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., to AMBAC Industries, Incorporated. Stamped sheet metal frame for dynamoelectric machine. 4,335,323, Cl. 310-40.00R.
Keegan, Jack J.: *See*—
Sherwood, Loran D.; Keegan, Jack J.; and Gniewek, Stephen A., 4,335,073, Cl. 422-83.000.
Keller, Hansueli: *See*—
Trumpf, Jakob; and Keller, Hansueli, 4,334,811, Cl. 409-233.000.
Kellogg, Harlan F. Interlocking shelf and bracket construction. 4,334,483, Cl. 108-152.000.
Kelly, James D., to Radiochemical Centre Limited, The. Indium-111 oxine complex composition. 4,335,095, Cl. 424-1.000.
Kempf, August J.: *See*—
Wilson, Kenneth E.; and Kempf, August J., 4,335,212, Cl. 435-119.000.
Kendall Company, The: *See*—
Peterson, James J., 4,334,537, Cl. 128-275.000.
Kennecott Corporation: *See*—
Kim, Jonathan J.; and Ammann, Paul R., 4,334,924, Cl. 75-133.500.
Kim, Jonathan J.; and Elliott, John F., 4,334,925, Cl. 75-133.500.
Kennedy, Robert E.: *See*—
Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., 4,334,354, Cl. 29-840.000.
Kennis, Ludo: *See*—
Vandenberk, Jan; Kennis, Ludo; Van der Aa, Marcel; and Van Heertum, Albert, 4,335,127, Cl. 424-251.000.
Kepco, Inc.: *See*—
Nercessian, Sarkis, 4,335,445, Cl. 364-900.000.
Kepes, Andre. Process for determining the rheometric properties of materials and apparatus carrying out said process. 4,334,424, Cl. 73-59.000.
Kernforschunggszentrum Karlsruhe GmbH: *See*—
Geerk, Jochen; and Ratzel, Fritz, 4,335,314, Cl. 250-492.300.
Kerschl, Rudolf: *See*—
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.
Kessinger, Boyd A.: *See*—
Geiger, Walter R.; and Kessinger, Boyd A., 4,334,554, Cl. 138-44.000.
Kibby, Robert M., to Reynolds Metals Company. Carbothermic reduction furnace. 4,334,917, Cl. 75-10.00R.
Kim, Jonathan J.; and Ammann, Paul R., to Kennecott Corporation. Pyrometallurgical oxidation of molybdenum rich matte. 4,334,924, Cl. 75-133.500.
Kim, Jonathan J.; and Elliott, John F., to Kennecott Corporation. Combined carburization and sulfurization/desulfurization of molybdenum-rich matte. 4,334,925, Cl. 75-133.500.
Kimberly-Clark Corporation: *See*—
Dinius, James H., 4,335,066, Cl. 264-121.000.
Kimes, Richard C.: *See*—
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.
Kindig, Alan L.: *See*—
Miller, Sammy L.; and Kindig, Alan L., 4,335,325, Cl. 310-214.000.
Kinetic Instruments Inc.: *See*—
Magid, Kenneth S.; and Becker, William J., 4,334,863, Cl. 433-29.000.
King, John: *See*—
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.
Kirchner, Andreas: *See*—
Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, 4,334,825, Cl. 416-134.00A.
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, to Nippon Steel Corporation. Method for rolling steel sections having flanges or flange-like portions. 4,334,419, Cl. 72-225.000.
Kiss, Csaba: *See*—
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.
Kita, Toru; and Kobayashi, Hiroshi, to Nissan Motor Co., Ltd. Karman vortex type flow measuring apparatus. 4,334,426, Cl. 73-118.000.
Kittell, David H.: *See*—
Kreuzer, Justin L.; and Kittell, David H., 4,335,313, Cl. 250-491.000.
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., to International Flavors & Fragrances Inc. Process for augmenting or enhancing the aroma of detergents using cyclohexyl phenethylether. 4,335,008, Cl. 252-174.110.
Kiwala, Jacob: *See*—
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.
Klamer, Reuben B.; and Mortonson, Robert J., to Trend Products Group. Trainer/learner skate. 4,334,690, Cl. 280-11.210.
Kleeli, Ruedi: *See*—
Gross, Paul; and Kleeli, Ruedi, 4,334,848, Cl. 425-262.000.
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, to Degussa Aktiengesellschaft. 1-[3-(3,4,5-Trimethoxyphenoxy)-2-hydroxy-propyl]-4-aryl-piperazine-derivatives having pharmaceutical activity. 4,335,126, Cl. 424-250.000.
Klein, Charles A.: *See*—
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.
Klein, Schanzlin & Becker Aktiengesellschaft: *See*—
Holzenberger, Kurt, 4,334,370, Cl. 37-195.000.
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., to International Flavors & Fragrances Inc. Methyl substituted norbornane carboxaldehydes, organoleptic uses thereof and process for preparing same. 4,335,152, Cl. 426-538.000.
Klemme, Darrell A., to USM Corporation. Adhesive systems and laminates. 4,335,222, Cl. 523-454.000.
Kleykamp, Donald L., to Dayco Corporation. Wear member for railway vehicle. 4,334,625, Cl. 213-61.000.
Klimenko, Vladimir I.: *See*—
Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A., 4,334,987, Cl. 209-210.000.
Klingler, Michael R. Manipulating rotary control device. 4,334,492, Cl. 116-309.000.
Klockner-Humboldt-Deutz AG: *See*—
Biernath, Siegfried, 4,334,512, Cl. 123-469.000.
Herchenbach, Horst, 4,334,860, Cl. 432-14.000.
Kloetzer, Dietrich: *See*—
Carduck, Franz-Josef; Kloetzer, Dietrich; and Veldman, Gerard, 4,335,144, Cl. 426-62.000.
Klopcic, J. Terrence: *See*—
Rainis, Albert E.; and Klopcic, J. Terrence, 4,334,423, Cl. 73-35.000.
Kluth, Hermann; Bachmann, Robert; and Wegner, Jurgen, to Henkel Kommanditgesellschaft auf Aktien. Two-component dosing apparatus. 4,334,787, Cl. 366-162.000.
Kmeco, Rudolf: *See*—
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.
Knob, Vaclav: *See*—
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.
Knohl, Rudolph E., to Illinois Tool Works Inc. Fastener with a modified thread form. 4,334,815, Cl. 411-368.000.
Knutson, Richard K.: *See*—
Blake, Jon R.; Knutson, Richard K.; and Strommer, Deon L., 4,335,155, Cl. 426-565.000.
Koa Oil Co., Ltd.: *See*—
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.
Kobayashi, Hiroshi: *See*—
Kita, Toru; and Kobayashi, Hiroshi, 4,334,426, Cl. 73-118.000.
Kobayashi, Hiroto, to Walbro Far East, Inc. Auxiliary fuel supply device for internal combustion engines. 4,335,061, Cl. 261-44.00G.
Kobayashi, Hiroto, to Walbro Far East, Inc. Carburetor with rotary throttle. 4,335,062, Cl. 261-44.00G.
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, to Matsushita Electric Industrial Co., Ltd. Heating control apparatus by humidity detection. 4,335,293, Cl. 219-10.55B.

Kobe Steel, Ltd.: *See*—
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.
Koch, Albert. Fall preventing devices. 4,334,595, Cl. 182-5.000.
Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., to Airco, Inc. Counterbalance mechanism for incubator hood. 4,334,629, Cl. 220-252.000.
Kochar, Nand K.; and Marcell, Richard L., to Halcon SD Group, Inc., The. Process for gasoline blending stocks. 4,334,890, Cl. 44-53.000.
Kockums Industri AB: *See*—
Ostberg, Sven E., 4,334,606, Cl. 198-443.000.
Koerwer, John F., to Union Carbide Corporation. Substituted 3-hydroxy-2-cyclohexene-1-one compounds as sugar enhancers for plants. 4,334,913, Cl. 71-98.000.
Kogan, Lawrence; and Pelloso, Turiddu A., to Nabisco Brands, Inc. Edible fat product. 4,335,156, Cl. 426-603.000.
Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, to Mahle GmbH. Piston for an internal combustion engine and method for producing same. 4,334,507, Cl. 123-193.00P.
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, to Fuji Electric Company, Ltd. Ultrasonic measuring instrument. 4,334,431, Cl. 73-597.000.
Koizumi, Akio; Nakazawa, Hiroshi; and Endo, Akira, to Sony Corporation. Transformer. 4,335,423, Cl. 363-21.000.
Koizumi, Kiyohiko: *See*—
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.
Kokubo, Jyoji, to Nippon Electric Co., Ltd. Semiconductor memory device. 4,335,449, Cl. 365-177.000.
Kolb, Dieter; Kopp, Eugen; and Muller-Sybrichs, Manfred, to Werner & Pfleiderer. Method and apparatus for pressure control in a press. 4,335,063, Cl. 264-3.00B.
Kolczynski, James R.; and Schultz, Gerald A., to Akzona Incorporated. Novel compositions comprising asymmetrical peroxydicarbonates and methods for their use. 4,335,230, Cl. 526-228.000.
Kolditz, John W., to Edison International, Inc. Brake fluid reservoir comprising polymethylpentene and 10–20% glass fibers. 4,335,167, Cl. 428-35.000.
Kollensperger, Dieter: *See*—
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.
Kolmar Laboratories Inc.: *See*—
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., 4,334,546, Cl. 132-88.500.
Konagaya, Takeshi; and Yano, Shunji, to Daiwa Can Company. Apparatus for defatting treatment of containers. 4,334,548, Cl. 134-170.000.
Kondo, Makoto: *See*—
Yokota, Tadashi; Watanabe, Wataru; and Kondo, Makoto, 4,335,409, Cl. 360-96.600.
Konishiroku Photo Industry Co., Ltd.: *See*—
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, 4,335,196, Cl. 430-122.000.
Konrath, Karl; and Brink, Gerhard, to Robert Bosch GmbH. Fuel injection pump for internal combustion engine. 4,334,514, Cl. 123-502.000.
Kontes Glass Company: *See*—
Apothaker, Richard L.; Reed, James; Croce, Carmen L.; and Wagner, Frederick B., III, 4,334,904, Cl. 65-36.000.
Kopp, Eugen: *See*—
Kolb, Dieter; Kopp, Eugen; and Muller-Sybrichs, Manfred, 4,335,063, Cl. 264-3.00B.
Koppers Company, Inc.: *See*—
Hill, Robert E., 4,335,109, Cl. 424-140.000.
Kortech Engineering, Inc.: *See*—
Allen, Ralph A.; Madden, Donald S.; and Zylkowski, John T., 4,334,729, Cl. 339-125.00R.
Kostelc, James G.: *See*—
Preti, George; Kostelc, James G.; and Zelson, Philip R., 4,334,540, Cl. 128-630.000.
Kostka, Anton: *See*—
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.
Kowa Co., Ltd.: *See*—
Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, 4,335,247, Cl. 548-140.000.
Kowolik, Ernst: *See*—
Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., 4,334,898, Cl. 55-269.000.
Koyama, Yasujiro: *See*—
Iiyama, Makoto; and Koyama, Yasujiro, 4,334,858, Cl. 432-9.000.
Kramer, Petrus A., to Shell Oil Company. Preparation of dihalovinyl compounds. 4,335,253, Cl. 560-124.000.
Krautz, Kurt; and Ender, Erhard, to Autoslug Stakupress GmbH & Co. Buckle for a safety belt. 4,334,341, Cl. 24-230.0AT.
Kreibiehl, Guenter: *See*—
Mahnke, Harald; Kreibiehl, Guenter; Weber, Heinz; and Woerner, Frank P., 4,334,971, Cl. 204-159.210.
Krespan, Carl G., to Du Pont de Nemours, E. I., and Company. Alkyl perfluoro (2-methyl-5-oxo-3-oxahexanoate). 4,335,255, Cl. 560-174.000.
Kretzschmar, Rolf: *See*—
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.
Kreuzer, Justin L.; and Kittell, David H., to Perkin-Elmer Corporation, The. Method and apparatus for aligning an opaque mask with an integrated circuit wafer. 4,335,313, Cl. 250-491.000.
Kriedt, Hans; and Dietze, Andreas, to Siemens Aktiengesellschaft. Monolithically integrable lowpass filter circuit. 4,335,359, Cl. 330-257.000.
Krier, Keith N.: *See*—
Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., 4,334,335, Cl. 15-319.000.
Krimm, David L.: *See*—
Martin, James O.; Fathergill, Rex D.; and Krimm, David L., 4,334,456, Cl. 84-314.00R.
Krimm, Heinrich: *See*—
Buysch, Hans-Josef; Krimm, Heinrich; and Bohm, Siegfried, 4,335,051, Cl. 260-463.000.
Krings, Peter: *See*—
Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, 4,335,024, Cl. 252-545.000.
Krishnakumar, Suppayan M.; and Pocock, John F. E., to Continental Group, Inc., The. Blow molded plastic bottle. 4,334,627, Cl. 215-1.00C.
Krol, Thijs, to U.S. Philips Corporation. Memory incorporating error detection and correction. 4,335,458, Cl. 371-38.000.
Krolak, Leo V.: *See*—
Wakat, Emory, Jr.; Dworsky, Lawrence N.; Krolak, Leo V.; Whalin, Jeffery A.; and Mech, Harold W., 4,334,343, Cl. 29-25.350.
Krosunger, Peter. Anti-mar base for saber- and bayonet-type saws and the like. 4,334,356, Cl. 30-374.000.
Kubis, Heribert; and Schott, Karl, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Oil pump arrangement. 4,334,836, Cl. 417-364.000.
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, to Yamanouchi Pharmaceutical Co. Ltd. Thiazolo[3,2-6]isoquinolines, compositions and use thereof. 4,335,129, Cl. 424-258.000.
Kubo, Masaharu: *See*—
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, 4,335,406, Cl. 358-213.000.
Kubota, Hiroshi: *See*—
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.
Kubota, Kazuo: *See*—
Asaumi, Hiroshi; Kubota, Kazuo; Yokoo, Hisanori; and Yamamoto, Mitsuo, 4,334,931, Cl. 106-120.000.
Kucera, Carrell J., to Norden Laboratories Inc. Processes for the growth of a modified *Pasteurella multocida* bacteria and preparation of a vaccine therefrom. 4,335,106, Cl. 424-92.000.
Kukolja, Stjepan; and Pfeil, Janice L., to Eli Lilly and Company. Process for cyclization. 4,335,240, Cl. 544-90.000.
Kulischenko, Walter, to Pennwalt Corporation. Gearless position indicator. 4,334,491, Cl. 116-31.000.
Kumano, Shinji, to Nippon Gakki Seizo Kabushiki Kaisha. Keyboard musical instrument with removable box leg. 4,334,453, Cl. 84-177.000.
Kumazawa, Ryozi: *See*—
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.
Kumazawa, Tetsuo: *See*—
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Kump, Ernest J. Containers. 4,334,359, Cl. 312-111.000.
Kun Chemical Engineers: *See*—
Hosaka, Hideaki; and Kuri, Setuya, 4,335,150, Cl. 426-465.000.
Kund, August, to Communications Technology Corporation. Bonding device. 4,334,726, Cl. 339-14.00L.
Kunisawa, Masuo: *See*—
Atoji, Hitomi; Kunisawa, Masuo; Hirata, Atsuro; and Araki, Yasuaki, 4,335,407, Cl. 358-284.000.
Kuraray Company, Limited: *See*—
Igi, Keishiro; and Masao, Ishii, 4,335,188, Cl. 428-458.000.
Kuri, Setuya: *See*—
Hosaka, Hideaki; and Kuri, Setuya, 4,335,150, Cl. 426-465.000.
Kurihara, Kazuhiko: *See*—
Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, 4,335,070, Cl. 264-555.000.
Kurimoto Iron Works, Ltd.: *See*—
Takeuchi, Shigeru, 4,335,177, Cl. 428-247.000.
Kurita, Atsushi: *See*—
Hatanaka, Masayuki; and Kurita, Atsushi, 4,335,035, Cl. 523-212.000.
Kurita, Hitoshi: *See*—
Tanaka, Junzo; Nakano, Chikao; and Kurita, Hitoshi, 4,335,292, Cl. 219-10.55F.
Kurosaki Refractories Co., Ltd.: *See*—
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.
Kusche, Peter: *See*—
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Baumann, Kurt; Kusche, Peter; and Redecker, Reinhard, 4,335,441, Cl. 364-580.000.
Kustom Electronics, Inc.: *See*—
Berry, Fred M., 4,335,383, Cl. 343-8.000.

Kydd, Richard A.: *See—*
Miller, Donald N.; and Kydd, Richard A., 4,335,201, Cl. 430-527.000.

Kyowa Hakko Kogyo Co., Ltd.: *See—*
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.
Terada, Osamu; and Aisaka, Kazuo, 4,335,213, Cl. 435-190.000.

Laboratoires Sarget: *See—*
Combier, Henri; Prat, Gisele; and Pontagnier, Henri, 4,335,113, Cl. 424-180.000.

Labrum, Warren W. Well casing closure. 4,334,578, Cl. 166-75.00R.

Lacour-Gayet, Philippe J., to Schlumberger Technology Corporation. Method and apparatus for detecting an anomaly in a resistivity measurement of an earth formation. 4,335,353, Cl. 324-366.000.

Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, to Snamprogetti S.p.A. Apparatus for desalting sea water or brackish water. 4,334,954, Cl. 159-18.000.

Lahrs, Jurgen: *See—*
von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, 4,334,992, Cl. 210-241.000.

Lais, Siegfried: *See—*
Seitzinger, Kurt; and Lais, Siegfried, 4,334,489, Cl. 114-144.00R.

Lancet, Michael S.; and Curran, George P., to Conoco Inc. Process for producing synthesis gas from wood. 4,334,894, Cl. 48-209.000.

Landa, Benzion, to Savin Corporation. Single fixed position lens variable copy size optical system for copying machine. 4,334,762, Cl. 355-8.000.

Landis, Phillip S.: *See—*
Armstrong, Eldon L.; and Landis, Phillip S., 4,335,005, Cl. 252-49.600.

Landsman, Robert M., to LogEtronics, Inc. Method and apparatus for manipulating and transporting image media. 4,334,770, Cl. 355-104.000.

Lang, Robert J., to Exxon Research & Engineering Co. Recovery of alkali metal catalyst constituents with sulfurous acid. 4,334,893, Cl. 48-202.000.

Lange International S.A.: *See—*
Chalmers, Edward L., II; and Shugart, Wayne L., Sr., 4,334,368, Cl. 36-121.000.

Lanneau, Jacques: *See—*
Delcoigne, Adrien; and Lanneau, Jacques, 4,334,786, Cl. 366-132.000.

La Pointe, Henry A. Accessory for fireplace damper. 4,334,520, Cl. 126-288.000.

LaPointe, Roland R., to Joy Manufacturing Company. Pneumatic and hydraulic power control of drill. 4,334,408, Cl. 60-423.000.

Lasser, Elliott C., to University of California, The Regents of the. Method for identifying potential contrast media reactors. 4,335,203, Cl. 435-23.000.

Latassa, Frank M.; Ray, John G.; and Roy, Joseph A., to GTE Products Corporation. Mercury dispenser for discharge lamps. 4,335,326, Cl. 313-177.000.

Latchinian, Jim S. Furniture edge assembly. 4,334,796, Cl. 403-217.000.

Lawson, Daniel D.: *See—*
Corcoran, William H.; Vasilakos, Nicholas P.; and Lawson, Daniel D., 4,334,888, Cl. 44-1.0SR.

Leanza, William J.: *See—*
Christensen, Burton G.; Leanza, William J.; and Wildonger, Kenneth J., 4,335,043, Cl. 260-245.20T.

Leather's Chemical Company, Limited: *See—*
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.

Le Berre, Serge: *See—*
Hareng, Michel; and Le Berre, Serge, 4,334,734, Cl. 350-331.00R.
Hareng, Michel; and Le Berre, Serge, 4,334,735, Cl. 350-351.000.

Lederer, Edgar: *See—*
Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, 4,335,111, Cl. 424-177.000.

Lee, David M., to United States of America, Energy. Method and apparatus for measuring irradiated fuel profiles. 4,335,466, Cl. 376-257.000.

Lee, Thomas B.: *See—*
Cairns, Hugh; Hazard, Richard; King, John; and Lee, Thomas B., 4,335,048, Cl. 549-402.000.

Le Foll, Jean: *See—*
Salvat, Francois; Bouko, Jean; and Le Foll, Jean, 4,335,387, Cl. 343-756.000.

Lefrancier, Pierre; Lederer, Edgar; Choay, Jean; and Chedid, Louis, to Agence National de Valorisation de la Recherche (ANVAR). Compounds associating peptidyl of aminoacyl residues to lipophilic groups and pharmaceutical compositions containing said new compounds. 4,335,111, Cl. 424-177.000.

Lehman, Richard F., to Xerox Corporation. Flash exposure system. 4,334,767, Cl. 355-68.000.

Leist, Helmut; and Ullrich, Georg J., to Hellige, GmbH. Thermal protective circuit for a hyperemia-inducing physiological sensor. 4,334,541, Cl. 128-632.000.

Lemforder Metallwaren AG: *See—*
Westphal, Paul, 4,334,795, Cl. 403-131.000.

Lenke, Dieter: *See—*
Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, 4,335,138, Cl. 424-275.000.

Lenz, Robert W.: *See—*
Chandler, John E.; and Lenz, Robert W., 4,335,235, Cl. 528-397.000.

Le Page, Jean-Francois: *See—*
Jacquin, Yves; and Le Page Jean-Francois, 4,334,982, Cl. 208-216.00R.

Lesher, George Y.; and Singh, Baldev, to Sterling Drug, Inc. 5-(Py-Y)-1H-benzimidazol-2-ols and 5-(Py-Y-)-1H-benzimidazole-2-thiols. 4,335,132, Cl. 424-263.000.

Leveille, Joseph, to Polychrome Corporation. Plate processor. 4,334,758, Cl. 354-319.000.

Levin, Harry P., to Electric Power Research Institute, Inc. Electrically insulating seal assembly. 4,335,273, Cl. 174-52.00S.

Levinrad, Maxim D. Constructional kits. 4,334,868, Cl. 434-172.000.

Levy, Stanley B., to Du Pont de Nemours, E. I., and Company. Flat sheet process for production of polyolefin shrink film. 4,335,069, Cl. 264-290.200.

Licentia Patent-Verwaltungs-GmbH: *See—*
Schmitz, Johannes; and Rohrbein, Roland, 4,335,364, Cl. 333-33.000.

Ligthart, Franciscus A. S.: *See—*
Peters, Robert C.; Vrenken, Louis E.; Couvbenberg, Winston D.; and Ligthart, Franciscus A. S., 4,335,330, Cl. 313-486.000.

Lin, Tsan H.: *See—*
Chow, Sen-Te; and Lin, Tsan H., 4,335,400, Cl. 358-113.000.

Lindeboom, Herman, to Ingersoll-Rand Company. Friction rock stabilizer and method of installing same in an earth structure. 4,334,804, Cl. 405-259.000.

Linder, Ernst: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Link, Manfred; Puch, Diethelm; Zahner, Peter; and Suc, Karel, to Triumph Werke Nurnberg A.G. Type disc typewriter with electronic positioning control. 4,334,790, Cl. 400-144.200.

Link, William T., to Datagraphix, Inc. Microfiche reader assembly and method. 4,334,742, Cl. 353-78.000.

Link, William T., to Datagraphix, Inc. Optical arrangement for use in a microfiche reader and method. 4,334,743, Cl. 353-97.000.

Lion Corporation: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.

Little, Roger G., to Spire Corporation. Electron beam processor. 4,335,297, Cl. 219-121.0EQ.

Litton Systems, Inc.: *See—*
Rodger, Erwin, 4,334,760, Cl. 355-3.0DD.

Liu, Henry, to University of Missouri, The Curators of the. Capsule injection system for a hydraulic capsule pipelining system. 4,334,806, Cl. 406-31.000.

Livemore, Gerald S. V., to Foster Wheeler Energy Corporation. Gas producer apparatus including a water jacket. 4,334,892, Cl. 48-76.000.

Liversidge, Thomas K. Game apparatus. 4,334,680, Cl. 273-1.0GE.

Livingston Labs.: *See—*
Livingston, William S., 4,335,040, Cl. 260-112.00R.

Livingston, William S., to Livingston Labs. Therapeutic product and method. 4,335,040, Cl. 260-112.00R.

Lizardo, Renato A.; and O'Shaughnessy, Roger D., to Cardinal Insulated Glass Co. Method of manufacturing a multiple-pane insulating glass unit. 4,335,166, Cl. 428-34.000.

Lockwood, Frank J. Locking brace for gasoline dispensing nozzles. 4,334,560, Cl. 141-392.000.

Lockwood, Raymond M., to Jetsonic Processes, Ltd. Sonic energy perforated drum for rotary dryers. 4,334,366, Cl. 34-17.000.

Loehr, Albrecht: *See—*
Hennemann, Manfred; Loehr, Albrecht; Krings, Peter; and Weber, Rudolf, 4,335,024, Cl. 252-545.000.

Loewrigkeit, Peter: *See—*
Dabi, Shmuel; Loewrigkeit, Peter; and Van Dyk, Kenneth A., 4,335,029, Cl. 524-589.000.

LogEtronics, Inc.: *See—*
Landsman, Robert M., 4,334,770, Cl. 355-104.000.

Lombardi, Louis J.; and Coyne, Roy J., to Richardson Company, The. Radiation curable solvent-free compositions recovery system. 4,334,970, Cl. 204-159.150.

Long, William E., to Ciba-Geigy AG. Process for preparing certain pyridine 2,3,6-triones. 4,335,245, Cl. 546-288.000.

Loos, Herbert: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.

Lorang, Lucien: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.

Lordi, Frank E.; and Francis, Peter S., to Atlantic Richfield Company. Blend of styrene-maleic anhydride and high impact polystyrene. 4,335,037, Cl. 524-504.000.

Lorimor, Larry W.: *See—*
Hajek, Thomas J., II; and Lorimor, Larry W., 4,334,553, Cl. 137-625.660.

Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, to Richter Gedeon Vegyeszeti Gyar Rt. Plant-protective and pest-control agent. 4,334,910, Cl. 71-82.000.

Lorincz nee Csapo, Eva: *See—*
Lorincz, Csaba; Lorincz nee Csapo, Eva; Gebhardt, Istvan; Gimesi, Antal; Stefko, Bela; Bogsch, Erik; Foldesi nee Szasz, Zsuzsanna; and Szasz, Kalman, 4,334,910, Cl. 71-82.000.

Losonczi, Janosne: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Lounsberry, Stephen M., Jr., deceased, to Moore and Steele Corporation. Hydraulic fluid-operated railway track lubricating apparatus. 4,334,596, Cl. 184-3.00A.

Loveless, Frederick C.: *See—*
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, 4,335,006, Cl. 252-49.700.

Lucas Industries Limited: *See—*
Kane, Gary, 4,334,494, Cl. 118-63.000.

Ludwig, Bernd; and Donner, Jurgen, to Starkstrom Gummersbach GmbH. Electric switching apparatus particularly a cam switch. 4,335,288, Cl. 200-307.000.

Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., to TRW Inc. Method of fabricating a solar array. 4,334,354, Cl. 29-840.000.

Luh, Howard H. S.: *See—*
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.

Luhmer, Udo: *See—*
Behnke, Horst; Loos, Herbert; Luhmer, Udo; Heckmaier, Manfred; and Kerschl, Rudolf, 4,334,810, Cl. 409-9.000.

Luo, Fang C., to Xerox Corporation. Thin film transistors, thin film transistor arrays, and a process for preparing the same. 4,335,161, Cl. 427-86.000.

Luthy, Willy A. R.: *See—*
Salathe, Rene P.; Badertscher, E. Gerhard; and Luthy, Willy A. R., 4,335,362, Cl. 372-46.000.

Lutz, Herbert; and Pfeifer, Rolf, to Siemens Aktiengesellschaft. X-ray diagnostic apparatus with an image-intensifier TV chain. 4,335,311, Cl. 250-409.000.

Lyman, Donald J.; and Middleton, Richard G., to University of Utah. Ureteral prosthesis. 4,334,327, Cl. 3-1.000.

Lynch, Marvin P. Detachable umbrella support assembly for a golf cart. 4,334,692, Cl. 280-79.10A.

Lyons, Michael D.; and Strobel, Richard A., to American Standard Inc. Electronic balance control circuit arrangement. 4,335,321, Cl. 307-252.00B.

Mabuchi, Kenichi; and Katsunuma, Tatsuo, to Mabuchi Motor Co., Ltd. Engine-driven model toy. 4,335,318, Cl. 290-31.000.

Mabuchi Motor Co., Ltd.: *See—*
Mabuchi, Kenichi; and Katsunuma, Tatsuo, 4,335,318, Cl. 290-31.000.

MacChesney, John B.; and O'Connor, Paul B., to Bell Telephone Laboratories, Incorporated. Optical fiber fabrication. 4,334,903, Cl. 65-3.120.

Machlett Laboratories, Incorporated, The: *See—*
Waugh, John S.; and Weber, Richard G., 4,335,327, Cl. 313-330.000.

MacKay, Fredric M.: *See—*
Winders, Gordon R.; and MacKay, Fredric M., 4,334,371, Cl. 40-2.00R.

Mackenzie, Sprague B. Stalling aerodynamics of the Cessna models 150 and 152 series aircraft. 4,334,658, Cl. 244-198.000.

Mackin, Michael H.: *See—*
Koch, Robert J.; Carden, Douglas D.; and Mackin, Michael H., 4,334,629, Cl. 220-252.000.

Mackintosh, Brian H.: *See—*
Sachs, Emanual M.; and Mackintosh, Brian H., 4,335,081, Cl. 422-246.000.

Madden, Donald S.: *See—*
Allen, Ralph A.; Madden, Donald S.; and Zylkowski, John T., 4,334,729, Cl. 339-125.00R.

Mader, Karl, to IDC Chemie AG. Insulated outer coating of walls of building structures. 4,334,394, Cl. 52-309.120.

Magee, Robert C.; and Rogers, Alfred M., III, to Thomson Industries, Inc. Linear bearings. 4,334,716, Cl. 308-6.00C.

Magid, Kenneth S.; and Becker, William J., to Kinetic Instruments Inc. Illuminator for dental handpiece. 4,334,863, Cl. 433-29.000.

Magill, James M., to Atwood Oceanics, Inc. Method and apparatus for installing a sea-floor cellar in a subsea bottom having compacted soil conditions. 4,334,584, Cl. 175-5.000.

Magnaghi Oleodinamica S.p.A.: *See—*
Tovagliaro, Costantino, 4,334,597, Cl. 188-71.800.

Magnex Corporation: *See—*
Neu, William F., 4,335,410, Cl. 360-123.000.

Maguire, Eileen: *See—*
Dillard, David A.; Maguire, Eileen; and Donovan, Lawrence P., III, 4,335,164, Cl. 427-304.000.

Magyar Aluminiumipari Troszt: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Mahieux, Jacques E.: *See—*
Fima, Raoul G.; and Mahieux, Jacques E., 4,334,428, Cl. 73-146.500.

Mahle GmbH: *See—*
Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, 4,334,507, Cl. 123-193.00P.

Mahnke, Harald; Kreibiehl, Guenter; Weber, Heinz; and Woerner, Frank P., to BASF Aktiengesellschaft. Manufacture of resilient foams based on a melamine-formaldehyde condensate. 4,334,971, Cl. 204-159.210.

Mahon, Robert M., to Nelson Industries, Inc. Filter assembly having an extruded filter head. 4,334,995, Cl. 210-340.000.

Mahoney, Martin D.: *See—*
Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., 4,334,911, Cl. 71-93.000.

Maida, Osamu, to Nippon Kogaku K.K. Exposure indicating device for a camera utilizing analog-digital converter. 4,334,745, Cl. 354-60.00L.

Makabe, Hachiro: *See—*
Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, 4,334,486, Cl. 112-158.00E.

Males, Robert E.; and Colechia, Edward A., to Textron Inc. Stick package of spring clip fasteners. 4,334,613, Cl. 206-340.000.

Mallory, James D.: *See—*
Westlake, Patrick C.; Fish, Keith; and Mallory, James D., 4,334,803, Cl. 405-259.000.

Mallow, Thomas T. Key holder. 4,334,326, Cl. 2-249.000.

Malmros, Mark K. Analytical device having semiconductive polyacetylene element associated with analyte-binding substance. 4,334,880, Cl. 23-230.00B.

Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A. Method of separation of solid phase in drilling mud. 4,334,987, Cl. 209-210.000.

Mann, Frederick: *See—*
Rader, William W., 4,334,794, Cl. 401-50.000.

Manring, Gary L.: *See—*
Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., 4,335,115, Cl. 424-181.000.

Mapco, Inc.: *See—*
Martin, Philip N., 4,334,591, Cl. 181-116.000.

Marano, John P., Jr.; and Farag, Maya S., to Mobil Oil Corporation. Microwaveable heat and grease resistant containers. 4,335,181, Cl. 428-319.300.

Marcell, Richard L.: *See—*
Kochar, Nand K.; and Marcell, Richard L., 4,334,890, Cl. 44-53.000.

Marconi Company Limited, The: *See—*
Bowers, Douglas F., 4,335,363, Cl. 332-37.00R.
Burrows, Michael J., 4,334,866, Cl. 434-2.000.
Heaviside, John W., 4,335,347, Cl. 323-328.000.

Markem Corporation: *See—*
Noyes, Mark S.; and Perra, Andrew G., Jr., 4,334,471, Cl. 101-228.000.

Markezich, Ronald L., to General Electric Company. Thermally stable polycarbonate compositions. 4,335,039, Cl. 524-108.000.

Markle, Richard A.: *See—*
Cremeans, George E.; and Markle, Richard A., 4,335,027, Cl. 528-281.000.

Marloth, Herbert: *See—*
Reichl, Ernst; and Marloth, Herbert, 4,334,531, Cl. 128-200.140.

Marquardt, Ralph E. Electronic control device. 4,335,376, Cl. 340-547.000.

Marsden, Peter H.: *See—*
Watts, Ian S.; and Marsden, Peter H., 4,335,139, Cl. 424-285.000.

Marsh, James C., Jr.; and Snell, Marcus L., Jr., to RCA Corporation. Audio de-emphasis circuit. 4,335,470, Cl. 455-205.000.

Marshall, Arthur K. Bedside commode. 4,334,330, Cl. 4-480.000.

Marshall, Vincent P.: *See—*
Argoudelis, Alexander D.; Marshall, Vincent P.; and Johnson, Leroy E., 4,335,108, Cl. 424-117.000.

Martensson, Karl J. G.: *See—*
Brockwell, Ian P.; and Martensson, Karl J. G., 4,334,465, Cl. 99-454.000.

Martin, James O.; Fathergill, Rex D.; and Krimm, David L. Guitar neck fret assembly. 4,334,456, Cl. 84-314.00R.

Martin, John R. Method and system for providing an audible alarm responsive to sensed conditions. 4,335,379, Cl. 340-634.000.

Martin, Philip N., to Mapco, Inc. Transporter for low energy seismic source. 4,334,591, Cl. 181-116.000.

Martin, Pierre: *See—*
Dingwall, John G.; Greuter, Hans; Martin, Pierre; Ackermann, Peter; and Gsell, Laurenz, 4,335,057, Cl. 260-501.190.

Martin, William E.; and Sumrall, Harold E., to J. R. Simplot Company. Cutter assembly for dough strips. 4,334,447, Cl. 83-111.000.

Martinson, John R., Jr. Video signal mixer apparatus and method. 4,335,404, Cl. 358-188.000.

Maruyama, Kunio; and Okazaki, Akira, to Sumitomo Chemical Co., Ltd. Process for producing carbon fibers. 4,335,089, Cl. 423-447.400.

Marvin Glass & Associates: *See—*
Rogers, Gregory B.; Wildman, John R.; and Breslow, Jeffrey D., 4,334,384, Cl. 46-39.000.

Maryland, Alfred L.: *See—*
Rukavina, Thomas G.; and Maryland, Alfred L., 4,335,187, Cl. 428-412.000.

Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., to Owens-Corning Fiberglas Corporation. Chemically modified asphalt compositions. 4,335,186, Cl. 428-375.000.

Masao, Ishii: *See—*
Igi, Keishiro; and Masao, Ishii, 4,335,188, Cl. 428-458.000.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See—*
Hirt, Dieter; Steigenberger, Richard; and Meinke, Peter, 4,334,718, Cl. 308-10.000.
Kubis, Heribert; and Schott, Karl, 4,334,836, Cl. 417-364.000.

Maschinenfabrik Rissen GmbH: *See—*
Eckert, Eugen, 4,334,875, Cl. 493-303.000.

Masly, John R.: *See—*
Goes, Michael J.; Masly, John R.; and Schmidlin, Albertus E., 4,334,478, Cl. 102-529.000.

Mason, Charles D.: *See—*
Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., 4,335,223, Cl. 525-179.000.

Masucci, Carmine, to Izon Corporation. Melding mask. 4,334,741, Cl. 353-38.000.

Matay, Istvan M.: *See—*
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.

Matsko, Joseph J.: *See—*
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., 4,335,413, Cl. 361-93.000.

Matsuda, Akira: *See—*
Tezuka, Toru; and Matsuda, Akira, 4,334,588, Cl. 180-68.00P.

Matsukuma, Ikuo: *See—*
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.

Matsumi, Satoru: *See—*
Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, 4,334,433, Cl. 73-629.000.

Matsumoto, Fumio, to Fuji Photo Film Co., Ltd. Normalizing circuit for color printing system. 4,335,399, Cl. 358-80.000.

Matsumoto, Ikuo: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Matsushita Electric Corporation: *See—*
Rzeszewski, Theodore S., 4,335,396, Cl. 358-21.00R.

Matsushita Electric Industrial Co., Ltd.: *See—*
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, 4,335,293, Cl. 219-10.55B.
Nyuji, Tomoaki, 4,335,374, Cl. 340-365.00S.
Shiga, Kazumasa, 4,334,545, Cl. 128-732.000.
Tanaka, Junzo; Nakano, Chikao; and Kurita, Hitoshi, 4,335,292, Cl. 219-10.55F.

Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, to Nippon Oil Company, Limited. Polymer compositions comprising ethylene polymer blends. 4,335,224, Cl. 525-240.000.

Matthews, Edgar W., Jr.: *See—*
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., 4,335,388, Cl. 343-854.000.

Matthews, Lloyd J. Animal spraying apparatus. 4,334,504, Cl. 119-159.000.

Mattson, Kjell, to Aktiebolaget Bofors. Device for fin-stabilized shell or the like. 4,334,657, Cl. 244-3.280.

Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, to Magyar Aluminiumipari Troszt. Method of decreasing the organic substance content of alum earth production cycle performed according to the Bayer technology. 4,335,082, Cl. 423-122.000.

Maurer, Fritz; Hammann, Ingeborg; and Homeyer, Bernhard, to Bayer Aktiengesellschaft. Pesticidally active N,N-dimethyl-carbamic acid O-(4,6-dihydro-2H-thieno[3,4-c]pyrazol-3-yl) esters and 5-oxides and 5,5-dioxides thereof. 4,335,134, Cl. 424-273.00P.

Maurer, Helmut: *See—*
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., to International Business Machines Corporation. Remote processor initialization in a multi-station peer-to-peer intercommunication system. 4,335,426, Cl. 364-200.000.

Mayer, Sigmund: *See—*
Alfranseder, Josef; Mayer, Sigmund; Rebsdat, Siegfried; Riedl, Josef; and Schaffelhofer, Iwo, 4,335,014, Cl. 252-412.000.

Mayerchin, Alvin D.: *See—*
Hopkins, Michael F.; and Mayerchin, Alvin D., 4,334,415, Cl. 464-130.000.

Mayfield, Lawrence E.: *See—*
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.

Mazur, Richard J.; Dimsa, Robert D.; and Pekarcik, John T., to American Standard Inc. System for automatically delaying application of a snow brake for a railway vehicle. 4,334,711, Cl. 303-16.000.

McCabe Powers Body Company: *See—*
Jost, Richard P., 4,334,594, Cl. 182-2.000.

McCarthy, James, III: *See—*
Modia, Joseph W.; and McCarthy, James, III, 4,335,421, Cl. 362-223.000.

McCarthy, Robert H.: *See—*
Hunt, Willard F.; and McCarthy, Robert H., 4,335,427, Cl. 364-414.000.

McConnell, Paul A. Snap filter grill and assembly. 4,334,899, Cl. 55-321.000.

McCray, William R.: *See—*
Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., 4,334,792, Cl. 400-279.000.

McCullough, Robert W.; and Hewett, Thomas A., to Union Carbide Corporation. Solar heater with bondless honeycomb heat trap. 4,334,524, Cl. 126-449.000.

McDaniel, Bruce M.: *See—*
McDaniel, Diana G.; and McDaniel, Bruce M., 4,334,501, Cl. 119-16.000.

McDaniel, Diana G.; and McDaniel, Bruce M. Animal shelter and feed dispenser. 4,334,501, Cl. 119-16.000.

McDonald, Wesley E.: *See—*
Bull, Glen L.; McDonald, Wesley E.; and Edgerton, Milton T., 4,335,276, Cl. 179-1.0SP.

McFadden, Arthur R.; and Aultz, Daniel E., to Hoechst-Roussel Pharmaceuticals Inc. Dihydro-dibenzoxepines-thiepines and -morphanthridones, compositions and use. 4,335,122, Cl. 424-244.000.

McFarland, John, to Chemetics International Ltd. Converter for converting sulfur dioxide to sulfur trioxide. 4,335,076, Cl. 422-171.000.

McGean Chemical Company, Inc.: *See—*
Beach, Sidney C.; and Frisby, C. Richard, 4,334,966, Cl. 204-25.000.

McKay, Dwight L., to Phillips Petroleum Company. Catalyst regeneration. 4,335,021, Cl. 252-455.00R.

McKay, Dwight L.: *See—*
Bertus, Brent J.; and McKay, Dwight L., 4,334,979, Cl. 208-114.000.

McKay, Roger E.: *See—*
Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., 4,335,426, Cl. 364-200.000.

McKewan, Arthur J., to Microdot Inc. Self-tapping screw for use in plastics. 4,334,814, Cl. 411-311.000.

McKinnon, Charles A. Automatic hydraulic roll winder. 4,334,651, Cl. 242-56.00R.

McMillen, Bobby E.: *See—*
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., 4,335,323, Cl. 310-40.00R.

McMurtry, David H.: *See—*
Crawford, Roy P.; Gilovich, Paul A.; and McMurtry, David H., 4,334,656, Cl. 242-195.000.

McQuay-Perfex Inc.: *See—*
Buth, Randy L.; and Essig, Robert A., 4,334,648, Cl. 236-49.000.

Mead Corporation, The: *See—*
Spamer, William S.; and Barker, Robert C., 4,334,374, Cl. 40-606.000.

Mech, Harold W.: *See—*
Wakat, Emory, Jr.; Dworsky, Lawrence N.; Krolak, Leo V.; Whalin, Jeffery A.; and Mech, Harold W., 4,334,343, Cl. 29-25.350.

Meibaum, Raymond K.: *See—*
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., 4,334,934, Cl. 127-9.000.

Meinke, Peter: *See—*
Hirt, Dieter; Steigenberger, Richard; and Meinke, Peter, 4,334,718, Cl. 308-10.000.

Meister, Alton; and Williamson, Joanne M., to Cornell Research Foundation. Method of producing L-cysteine. 4,335,210, Cl. 435-113.000.

Melin, Arthur K.; Gillespie, Richard L.; and Geller, Douglas A., to Wham-O Mfg. Co. Flying disc. 4,334,385, Cl. 46-74.00D.

Melotti, Athos. Water sprinkling toy pistol with bubble-blowing ring. 4,334,383, Cl. 46-7.000.

Mendelsohn, Morris A.; and Navish, Francis W., to Westinghouse Electric Corp. Impregnated high voltage spacers. 4,335,179, Cl. 428-273.000.

Mentzer, David, to Exxon Research & Engineering Co. Stripping steam recycle for solvent recovery processes. 4,334,983, Cl. 208-326.000.

Mercier, Bernard J.: *See—*
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., 4,335,413, Cl. 361-93.000.

Merck & Co., Inc.: *See—*
Christensen, Burton G.; Leanza, William J.; and Wildonger, Kenneth J., 4,335,043, Cl. 260-245.20T.
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,335,141, Cl. 424-304.000.
Stoudt, Thomas H.; and Nollstadt, Karl H., 4,335,101, Cl. 424-50.000.
Wilson, Kenneth E.; and Kempf, August J., 4,335,212, Cl. 435-119.000.

Merrell Dow Pharmaceuticals Inc.: *See—*
Parker, Roger A., 4,335,098, Cl. 424-275.000.

Mesch, Hans G.: *See—*
Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., 4,334,354, Cl. 29-840.000.

Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung: *See—*
Brand, Konrad; and Franz, Dieter, 4,335,182, Cl. 428-319.300.
Braun, Dieter; Buchs, Wolfgang; and Kirchner, Andreas, 4,334,825, Cl. 416-134.00A.

Messerschmitt, Elmar. Device for sharpening and/or forming the profile of a screen printing squeegee. 4,334,448, Cl. 83-171.000.

Metcalfe, Lincoln D.: *See—*
Frank, Dieter; and Metcalfe, Lincoln D., 4,334,887, Cl. 23-313.00R.

Mettersheimer, John H., Jr., to Cannon, Charles B. Hydro-electric power apparatus utilizing ocean currents. 4,335,319, Cl. 290-54.000.

Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, to ARBED S.A. Process for metal-bath refining. 4,334,922, Cl. 75-60.000.

Metzger, Karl G.: *See—*
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.

Metzl, Robert: *See—*
Berkman, Samuel; and Metzl, Robert, 4,334,948, Cl. 156-608.000.

Meyers, Fred W.: *See—*
Baluha, Gerald F.; and Flanagan, Bernard E., 4,334,958, Cl. 162-352.000.

Meynier, Guy: *See—*
Carre, Jean-Jacques; and Meynier, Guy, 4,334,712, Cl. 303-24.00C.
Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., to Du Pont de Nemours, E. I., and Company. High contrast by imagewise iodide infection in a mixed silver halide system. 4,335,199, Cl. 430-434.000.
Michlin, Norman; and Thies, Edward J., to Universal Developer Corporation. Self-contained disposable developer/absorber package. 4,334,756, Cl. 354-300.000.
Michne, William F., to Sterling Drug Inc. Oximes of 11-(3-oxooctyl)-hexahydro-2,6-methano-3-benzazocines. 4,335,243, Cl. 546-97.000.
Mickelsen, Reid A.; and Chen, Wen S., to Boeing Company, The. Methods for forming thin-film heterojunction solar cells from I-III-VI_2 chalcopyrite compounds, and solar cells produced thereby. 4,335,266, Cl. 136-260.000.
Microdot Inc.: *See—*
McKewan, Arthur J., 4,334,814, Cl. 411-311.000.
Middleton, Richard G.: *See—*
Lyman, Donald J.; and Middleton, Richard G., 4,334,327, Cl. 3-1.000.
Migrin, Robert S., to Eaton Corporation. Temperature compensated fill valve/pressure switch. 4,335,283, Cl. 200-61.250.
Miki, Isao; and Nagi, Tsutomu, to Nippon Light Metal Co., Ltd. Method for cooling a plunger tip in a die casting machine of the cold chamber type and apparatus therefor. 4,334,575, Cl. 164-113.000.
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, to Aisin-Waker Kabushiki Kaisha. Electronic system for controlling an automatic transmission in response to changes in slope. 4,335,428, Cl. 364-424.000.
Miles, Brynley J.; and Rosevear, Alan, to United Kingdom Atomic Energy Authority. Composite materials comprising deformable xerogel within the pores of particulate rigid supports useful in chromatography. 4,335,017, Cl. 252-430.000.
Miller, Donald N.; and Kydd, Richard A., to Eastman Kodak Company. Antistatic compositions and elements containing same. 4,335,201, Cl. 430-527.000.
Miller, John A.: *See—*
Holloway, Richard L.; Miller, John A.; and Winters, Jerald E., 4,334,981, Cl. 208-131.000.
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., to Shop-Vac Corporation. Compact wet-dry electric vacuum cleaner. 4,334,337, Cl. 15-326.000.
Miller, Richard L. Single chip random access memory with increased yield and reliability. 4,335,459, Cl. 371-38.000.
Miller, Sammy L.; and Kindig, Alan L., to General Electric Company. Dynamoelectric machine stator assembly. 4,335,325, Cl. 310-214.000.
Milligan, Lee J., to Hospal Medical Corp. Control of dialysis and ultrafiltration. 4,334,988, Cl. 210-87.000.
Milne, James. Method of filling a hole in the ground. 4,334,798, Cl. 404-75.000.
Milner, William E., Jr. Collapsible, portable dental chair. 4,334,710, Cl. 297-440.000.
Minai, Masayoshi, to Sumitomo Chemical Company, Limited. Process for preparing aromatic aldehydes. 4,335,263, Cl. 568-437.000.
Minegishi, Mikio: *See—*
Minegishi, Susumu; and Minegishi, Mikio, 4,334,859, Cl. 432-13.000.
Minegishi, Susumu; and Minegishi, Mikio. Method and apparatus for melting matrix materials. 4,334,859, Cl. 432-13.000.
Miner, Robert M. Pin action mixing pump. 4,334,788, Cl. 366-303.000.
Mining Services International Corporation: *See—*
Day, John T.; and Udy, Lex L., 4,334,476, Cl. 102-275.700.
Minnesota Mining and Manufacturing Company: *See—*
Zenk, Robert E., 4,335,171, Cl. 428-40.000.
Minolta Camera Kabushiki Kaisha: *See—*
Oka, Tateki; Wada, Kenichi; and Tabuchi, Kenji, 4,334,497, Cl. 118-698.000.
Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, 4,334,766, Cl. 355-15.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Miura, Keiichi, 4,335,435, Cl. 364-469.000.
Mitsubishi Paper Mills, Ltd.: *See—*
Miyamoto, Shigehiko; and Watanabe, Yoshinobu, 4,335,184, Cl. 428-342.000.
Ohashi, Minoru; and Iwaosa, Katsuaki, 4,335,200, Cl. 430-446.000.
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, to Tokyo Shibaura Denki Kabushiki Kaisha. Electrically insulated coil. 4,335,367, Cl. 336-205.000.
Mitsui Kinzoku Kogyo Kabushiki Kaisha: *See—*
Yamada, Shinjiro, 4,334,704, Cl. 292-216.000.
Mitsui Toatsu Chemicals, Inc.: *See—*
Asai, Yoshiyuki; Shimada, Masao; and Soda, Kenji, 4,335,209, Cl. 435-108.000.
Mitsuishi, Tsutomu: *See—*
Nozawa, Hideyo; and Mitsuishi, Tsutomu, 4,334,737, Cl. 350-430.000.
Mitsuo, Tanaka; Kazuaki, Tagawa; and Takashi, Yano, to Ricoh Co., Ltd. Corona discharge device. 4,335,420, Cl. 361-230.000.
Miura, Eiji: *See—*
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.
Miura, Keiichi, to Mitsubishi Denki Kabushiki Kaisha. Method of changing rolling schedule during rolling in tandem rolling mill. 4,335,435, Cl. 364-469.000.
Miura, Taro: *See—*
Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, 4,335,291, Cl. 219-10.55E.
Miyamoto, Shigehiko; and Watanabe, Yoshinobu, to Mitsubishi Paper Mills, Ltd. Recording paper. 4,335,184, Cl. 428-342.000.
Miyanaga, Frank H. Attachment for a water closet. 4,334,329, Cl. 4-443.000.
Miyashita, Shunitsu: *See—*
Somemiya, Akiyoshi; Miyashita, Shunitsu; and Azuma, Masaaki, 4,335,233, Cl. 528-211.000.
Miyoshi, Mituji: *See—*
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.
Mizutani, Hiroshi: *See—*
Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, 4,334,333, Cl. 8-152.000.
Mobil Oil Corporation: *See—*
Armstrong, Eldon L.; and Landis, Phillip S., 4,335,005, Cl. 252-49.600.
Bowes, Emmerson; and Pelrine, Bruce P., 4,335,019, Cl. 252-450.000.
Chu, Pochen; Dwyer, Francis G.; and Huss, Albin, 4,335,020, Cl. 252-455.00Z.
Derbyshire, Francis J.; Varghese, Philip; and Whitehurst, Darrell D., 4,334,977, Cl. 208-8.0LE.
Edwards, Joseph T., 4,334,882, Cl. 23-230.00R.
Marano, John P., Jr.; and Farag, Maya S., 4,335,181, Cl. 428-319.300.
Yan, Tsoung Y., 4,334,976, Cl. 208-8.0LE.
Mobil Tyco Solar Energy Corporation: *See—*
Sachs, Emanual M.; and Mackintosh, Brian H., 4,335,081, Cl. 422-246.000.
Mochida, Haruo, to Nissan Motor Company, Limited. Clearance adjusting mechanism. 4,334,438, Cl. 74-501.00R.
Modia, Joseph W.; and McCarthy, James, III. Light fixture, light aperture and method of uniformly illuminating an optically diffusive viewing area. 4,335,421, Cl. 362-223.000.
Moen, David L.; and Peterson, Ray D., to Westinghouse Electric Corp. Paired stage flash evaporator having improved configuration. 4,334,961, Cl. 202-173.000.
Moffitt, Robert C., to United Technologies Corporation. Helicopter blade with a tip having a selected combination of sweep, taper and anhedral to improve hover efficiency. 4,334,828, Cl. 416-228.000.
Monarch Marking Systems, Inc.: *See—*
Hamisch, Paul H., Jr., 4,334,470, Cl. 101-111.000.
Monell Chemical Senses Center: *See—*
Preti, George; Kostelc, James G.; and Zelson, Philip R., 4,334,540, Cl. 128-630.000.
Monsanto Company: *See—*
Allart, Pierre J.; and Guillaume, Claude A., 4,335,013, Cl. 252-364.000.
Chupp, John P., 4,334,909, Cl. 71-76.000.
Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., 4,335,215, Cl. 435-241.000.
Montagna, Roberto: *See—*
Gandini, Francesco; Giandonato, Giuseppe; Impallomeni, Enrico; and Montagna, Roberto, 4,335,446, Cl. 364-900.000.
Montedison S.p.A.: *See—*
Bornengo, Mario; and Bacciarelli, Sergio, 4,335,260, Cl. 564-406.000.
Mookherjee, Braja D.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.
Moon, Marcus P., to Du Pont de Nemours, E. I., and Company. Insecticidal trifluoroethanimidothioate disulfides. 4,335,140, Cl. 424-298.000.
Mooney, John J.: *See—*
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.
Moore, Albert L.; Stewart, Clare A., Jr.; and Swerlick, Isadore, to Du Pont de Nemours, E. I., and Company. Fluoropolymer hexafluoropropene, tetrafluorethene and 1,1-difluoroethene. 4,335,238, Cl. 526-254.000.
Moore, Charles E.: *See—*
Gort, Alfred F.; and Moore, Charles E., 4,335,306, Cl. 250-231.0SE.
Moore, Michael T.: *See—*
Cutler, Robert S.; and Moore, Michael T., 4,334,878, Cl. 524-88.000.
Moore and Steele Corporation: *See—*
Lounsberry, Stephen M., Jr., deceased, 4,334,596, Cl. 184-3.00A.
Morgan, Bennie E., to Roof Control, Inc. Roof bolt and cradle arrangement. 4,334,805, Cl. 405-261.000.
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, to Kobe Steel, Ltd.; and Koa Oil Co., Ltd. Integrated process for thermal cracking of heavy oil and reduction of iron ores. 4,334,920, Cl. 75-26.000.
Mori, Masaharu: *See—*
Tanaka, Kouichi; and Mori, Masaharu, 4,335,322, Cl. 307-542.000.
Mori, Toshiki: *See—*
Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, 4,334,610, Cl. 206-205.000.
Morikawa, Teruo: *See—*
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.

Morinaga, Akio: *See—*
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.

Morishima, Hajime: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Morita, Akira: *See—*
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.

Morris, George C.: *See—*
Ellis, John D.; Crichton, George; Godwin, Millard C.; and Morris, George C., 4,334,907, Cl. 71-34.000.

Morris, Henry B., to Texas Instruments Incorporated. Non-volatile semiconductor memory elements and methods of making. 4,335,391, Cl. 357-23.000.

Morris, Larry R., to Alcan Research and Development Limited. Production of aluminum alloy sheet. 4,334,935, Cl. 148-2.000.

Morrison, White H., III; and Vest, Everette L., to Norlin Industries, Inc. Plastic musical instrument body having structural insert. 4,334,452, Cl. 84-1.160.

Morton, Edward W.: *See—*
Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, 4,334,782, Cl. 356-406.000.

Morton-Norwich Products, Inc.: *See—*
Schwan, Thomas J.; and Gray, Joseph E., 4,335,130, Cl. 424-258.000.

Mortonson, Robert J.: *See—*
Klamer, Reuben B.; and Mortonson, Robert J., 4,334,690, Cl. 280-11.210.

Mosbach, Klaus H. Magnetic polymer particles. 4,335,094, Cl. 424-1.000.

Mosser Industries, Inc.: *See—*
Connor, Peter J.; and Hagar, Donald K., 4,334,550, Cl. 137-242.000.

Mostmans, Joseph H.: *See—*
Heeres, Jan; Backx, Leo J. J.; and Mostmans, Joseph H., 4,335,125, Cl. 424-250.000.

Motorola Inc.: *See—*
Aufderheide, Maurice B.; and Daniel, Sam M., 4,335,372, Cl. 340-347.0DD.
Wakat, Emory, Jr.; Dworsky, Lawrence N.; Krolak, Leo V.; Whalin, Jeffery A.; and Mech, Harold W., 4,334,343, Cl. 29-25.350.

Moyer Diebel Limited: *See—*
Diebel, Howard; and deMan, Albert, 4,334,547, Cl. 134-46.000.

MPD Technology Corporation: *See—*
Rhoda, Richard N., 4,335,087, Cl. 423-413.000.

MTU Motoren- und Turbinen-Union Munchen GmbH: *See—*
Rossmann, Axel, 4,334,822, Cl. 415-113.000.

Muckelrath, Ernest R., to Tioga Air Heaters, Inc. Barrel warmer for drilling rigs. 4,334,862, Cl. 432-128.000.

Mueller, Hans P.: *See—*
Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., 4,334,898, Cl. 55-269.000.

Mueller, Jiri: *See—*
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.

Muller, Georges, to Commissariat a l'Energie Atomique. Filter replacement process and apparatus. 4,334,896, Cl. 55-96.000.

Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, to Robert Bosch GmbH. Electrochemical oxygen sensor, particularly for use with exhaust gases of internal combustion engines, and especially for polarographic application. 4,334,974, Cl. 204-195.00S.

Muller, Ludwig: *See—*
Adamowicz, Philippe J.; Platel nee Bonnet, Alberte; and Muller, Ludwig, 4,335,214, Cl. 435-239.000.

Muller-Sybrichs, Manfred: *See—*
Kolb, Dieter; Kopp, Eugen; and Muller-Sybrichs, Manfred, 4,335,063, Cl. 264-3.00B.

Muller, Werner; and Bunemann, Hans, to Boehringer Mannheim GmbH. Adsorbent for the affinity-specific separation of macromolecular materials. 4,335,226, Cl. 525-281.000.

Mullin, John M.: *See—*
Scalley, Douglas M.; and Mullin, John M., 4,335,370, Cl. 340-64.000.

Murakami, Shozo: *See—*
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.

Murasaki, Hiroshi: *See—*
Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, 4,334,766, Cl. 355-15.000.

Murata, Shinji: *See—*
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.

Murphy, John H.: *See—*
Floyd, David T.; Murphy, John H.; and Brodzinski, John J., 4,334,546, Cl. 132-88.500.

Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. Compositions of matter containing cis-3-hexenal. 4,335,002, Cl. 252-1.000.

Mutschler, Otto. Stand for holding and sealingly retaining India ink drawing implements. 4,334,622, Cl. 211-69.500.

Nabisco Brands, Inc.: *See—*
Kogan, Lawrence; and Pelloso, Turiddu A., 4,335,156, Cl. 426-603.000.

Nacheber, Niconedi P., Jr.: *See—*
Maxwell, Hiram M.; McKay, Roger E.; Nacheber, Niconedi P., Jr.; and Sze, Daniel T., 4,335,426, Cl. 364-200.000.

Nadella: *See—*
Stephan, Gerard, 4,334,414, Cl. 464-134.000.

Nagakura, Masahiko: *See—*
Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, 4,335,247, Cl. 548-140.000.

Naganuma, Takeshi: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.

Nagasoe, Seiichi: *See—*
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Tancharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.

Nagi, Tsutomu: *See—*
Miki, Isao; and Nagi, Tsutomu, 4,334,575, Cl. 164-113.000.

Nagy, Gabor: *See—*
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Naito, Hideshi: *See—*
Nozawa, Hideyo; and Naito, Hideshi, 4,334,746, Cl. 354-126.000.

Naito, Kyohei, to Shinwa Kabushiki Kaisha. Automatic tape feeding direction reversing device in a tape recorder. 4,334,655, Cl. 242-191.000.

Nakagawa, Akira: *See—*
Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, 4,335,251, Cl. 560-105.000.

Nakagawa, Hajime: *See—*
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.

Nakagawa, Yukia: *See—*
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.

Nakajima, Makoto; and Naramura, Masaru, to Nissan Motor Co., Ltd. Electronic fuel injection system for internal combustion engine. 4,334,513, Cl. 123-494.000.

Nakamura, Masato: *See—*
Takinishi, Kiyotoshi; and Nakamura, Masato, 4,334,542, Cl. 128-642.000.

Nakane, Katashi: *See—*
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.

Nakano, Chikao: *See—*
Tanaka, Junzo; Nakano, Chikao; and Kurita, Hitoshi, 4,335,292, Cl. 219-10.55F.

Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, to Lion Corporation. Oral composition for caries prophylaxis. 4,335,102, Cl. 424-52.000.

Nakasuji, Takashi: *See—*
Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, 4,334,937, Cl. 148-12.00R.

Nakayama, Wataru: *See—*
Fujioka, Kazumasa; and Nakayama, Wataru, 4,335,324, Cl. 310-61.000.

Nakazawa, Hiroshi: *See—*
Koizumi, Akio; Nakazawa, Hiroshi; and Endo, Akira, 4,335,423, Cl. 363-21.000.

Naker, Vernon W.: *See—*
Stegemeyer, Noel J.; and Naker, Vernon W., 4,334,363, Cl. 33-185.00R.

Nalco Chemical Company: *See—*
Ballweber, Edward G., 4,335,237, Cl. 526-234.000.
Barnett, Jack W.; and Sawyer, Roy D., 4,335,072, Cl. 422-53.000.

Namboodri, Chettoor G.: *See—*
Gregorian, Razmic S.; and Namboodri, Chettoor G., 4,334,877, Cl. 8-477.000.

Naramura, Masaru: *See—*
Nakajima, Makoto; and Naramura, Masaru, 4,334,513, Cl. 123-494.000.

Narcum, William. Adjustable hanger. 4,334,641, Cl. 223-94.000.

Narita, Hiroshi: *See—*
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.

Nash, Donald R., to Eltra Corporation. Electronic ignition with step advance. 4,334,509, Cl. 123-414.000.

Nash Engineering Company, The: *See—*
Haavik, Harold K., 4,334,830, Cl. 417-68.000.

National Semiconductor Corporation: *See—*
Connolly, Joseph J., Jr.; Redfern, Thomas P.; and Frederiksen, Thomas M., 4,335,371, Cl. 340-347.0CC.
Cunningham, James A.; and Tuxford, Anthony M., 4,335,162, Cl. 427-130.000.

Naumova, Tatyana N.: *See—*
Efimov, Vladimir M.; Naumova, Tatyana N.; Bykova, Irina G.; and Stroganova, Larisa A., 4,335,088, Cl. 423-420.000.

Navish, Francis W.: *See—*
Mendelsohn, Morris A.; and Navish, Francis W., 4,335,179, Cl. 428-273.000.

Navratil, Jaroslav: *See—*
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.

Neary, Michael P.; and Wilson, Thomas A. Chemical process. 4,335,160, Cl. 427-38.000.

Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., to Roussel Uclaf. 5 Amino-3,4,5,6 tetrahydro-1H-[-6-]cyclohept[c,d]indolols and a method for their use as hypotensives. 4,335,135, Cl. 424-274.000.

Neely, James E., Jr., to PPG Industries, Inc. Multiple glazed unit bonded with silicate cement. 4,334,941, Cl. 156-107.000.

Nelli, Pierre. Fish line guide assembly. 4,334,379, Cl. 43-24.000.

Nelson, Gunnar. Waterproof electrical switch. 4,335,286, Cl. 200-302.000.

Nelson Industries, Inc.: *See—*
Mahon, Robert M., 4,334,995, Cl. 210-340.000.

Nelson, John E., to Eberhard Faber, Inc. Adjustable straight edged device for use with drafting board. 4,334,364, Cl. 33-438.000.

Nelson, Lorne W., to Honeywell Inc. Furnace control using induced draft blower and exhaust gas differential pressure sensing. 4,334,855, Cl. 431-20.000.

Nelson, Peter F.: *See—*
Farrington, Alan; and Nelson, Peter F., 4,334,956, Cl. 162-30.110.

Nercessian, Sarkis, to Kepco, Inc. System for interfacing computers with programmable power supplie. 4,335,445, Cl. 364-900.000.

Nessel, Eliezer, to Iscar Ltd. Tool holder. 4,334,807, Cl. 407-103.000.

Neu, William F., to Magnex Corporation. Thin film magnetic transducer. 4,335,410, Cl. 360-123.000.

Neumann, Gerhard-Max, to Delbag-Luftfilter GmbH. Filter elements arranged in waste tanks for separating substances which are harmful to the health from flowing air in connection with nuclear installations. 4,334,900, Cl. 55-350.000.

Newbold, Robert W., Jr., to Plas-Tanks Industries, Inc. Reinforced plastic container with an integral heating element. 4,335,298, Cl. 219-441.000.

Niemczyk, Henry J., to Hoffmann-La Roche Inc. Process to produce imidazobenzodiazepine intermediates. 4,335,042, Cl. 260-239.0BD.

Nierlich, Franz: *See—*
Franz, Gerhard; Nierlich, Franz; and Ratajczak, Hans-Josef, 4,335,018, Cl. 252-435.000.

Nifco Inc.: *See—*
Watanabe, Koji, 4,334,632, Cl. 220-307.000.
Yuda, Takuo, 4,334,659, Cl. 248-73.000.

Niggemann, Johannes: *See—*
Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, 4,334,905, Cl. 71-27.000.

Nihon Nohyaku Co., Ltd.: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.

Nihon Senshoku Kikai Kabushiki Kaisha: *See—*
Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, 4,334,333, Cl. 8-152.000.

Nippon Asbestos Co., Ltd.: *See—*
Asaumi, Hiroshi; Kubota, Kazuo; Yokoo, Hisanori; and Yamamoto, Mitsuo, 4,334,931, Cl. 106-120.000.

Nippon Chemical Industrial Co., Ltd.: *See—*
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Nippon Electric Co., Ltd.: *See—*
Kokubo, Jyoji, 4,335,449, Cl. 365-177.000.
Tanaka, Kouichi; and Mori, Masaharu, 4,335,322, Cl. 307-542.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Kumano, Shinji, 4,334,453, Cl. 84-177.000.

Nippon Kogaku K.K.: *See—*
Maida, Osamu, 4,334,745, Cl. 354-60.00L.
Nozawa, Hideyo; and Mitsuishi, Tsutomu, 4,334,737, Cl. 350-430.000.
Nozawa, Hideyo; and Naito, Hideshi, 4,334,746, Cl. 354-126.000.

Nippon Kokan Kabushiki Kaisha: *See—*
Iiyama, Makoto; and Koyama, Yasujiro, 4,334,858, Cl. 432-9.000.

Nippon Light Metal Co., Ltd.: *See—*
Miki, Isao; and Nagi, Tsutomu, 4,334,575, Cl. 164-113.000.

Nippon Oil Company, Limited: *See—*
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.

Nippon Petrochemicals Co., Ltd.: *See—*
Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, 4,335,070, Cl. 264-555.000.

Nippon Seiko Kabushiki Kaisha: *See—*
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.

Nippon Soken, Inc.: *See—*
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, 4,334,422, Cl. 73-35.000.

Nippon Steel Corporation: *See—*
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.

Nippon Telegraph & Telephone Public Corp.: *See—*
Takeshima, Mikio; Kawase, Masaki; Yamanishi, Toru; and Yohida, Masaki, 4,334,733, Cl. 350-96.330.

Nirgude, Ranjan K.: *See—*
Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., 4,334,335, Cl. 15-319.000.

Nishibe, Kazuteru; and Furukawa, Naoji, to Farmhand Inc. Rotary baler with side pressure release. 4,334,467, Cl. 100-89.000.

Nishida, Reijiro: *See—*
Mori, Kenji; Miura, Eiji; Nishida, Reijiro; and Koizumi, Kiyohiko, 4,334,920, Cl. 75-26.000.

Nishigaki, Yuji; and Kawashima, Hirokuni, to Canon Kabushiki Kaisha. Electrophotosensitive element has resin encapsulated CdS particles in binding resin. 4,335,195, Cl. 430-94.000.

Nishimura, Yukuo: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

Nishino, Taneharu: *See—*
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.

Nissan Chemical Industries, Ltd.: *See—*
Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, 4,334,610, Cl. 206-205.000.

Nissan Motor Company, Ltd.: *See—*
Akiyama, Yoshinori; and Ueno, Shyichi, 4,334,709, Cl. 297-284.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,441, Cl. 74-868.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,442, Cl. 74-869.000.
Kita, Toru; and Kobayashi, Hiroshi, 4,334,426, Cl. 73-118.000.
Mochida, Haruo, 4,334,438, Cl. 74-501.00R.
Nakajima, Makoto; and Naramura, Masaru, 4,334,513, Cl. 123-494.000.
Seki, Shojiro, 4,334,706, Cl. 293-126.000.
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.

Nissen, Ole J.: *See—*
Dyhr, Jan; and Nissen, Ole J., 4,334,835, Cl. 417-363.000.

Nitz, Rolf-Eberhard: *See—*
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.

Nixdorf Computer AG: *See—*
Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, 4,334,732, Cl. 339-176.0MP.

Noda, Azusa: *See—*
Asakura, Toshimitsu; and Noda, Azusa, 4,334,589, Cl. 180-219.000.

Noda, Kanji; Nakagawa, Akira; Ishikura, Yuji; and Ide, Hiroyuki, to Hisamitsu Pharmaceutical Co. Inc. Phenyl-i-propionic acid esters and pharmaceutical use thereof. 4,335,251, Cl. 560-105.000.

Noel, Eugene M. Replaceable cup for English muffin proofing trays. 4,334,665, Cl. 249-134.000.

Nohira, Hidetaka: *See—*
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, 4,334,422, Cl. 73-35.000.

Nollstadt, Karl H.: *See—*
Stoudt, Thomas H.; and Nollstadt, Karl H., 4,335,101, Cl. 424-50.000.

Nomura, Toshio: *See—*
Atsumi, Minoru; Nomura, Toshio; and Kawahara, Jiro, 4,334,511, Cl. 123-454.000.

Norco Industries, Inc.: *See—*
Fox, Robert, 4,334,667, Cl. 254-8.00B.

Norcros Investments Limited: *See—*
Cunnington, Harry, 4,334,645, Cl. 226-137.000.

Norden Laboratories Inc.: *See—*
Kucera, Carrell J., 4,335,106, Cl. 424-92.000.

Nordschild, Christlieb; Rathfelder, Paul; Rieckert, Horst; and Wolber, Dieter, to Schill & Seilacher GmbH & Co. Preparation agent for the production of synthetic filaments. 4,335,003, Cl. 252-8.900.

Nordson Corporation: *See—*
Baker, Robert G.; and Ramazzotti, Dario J., 4,334,637, Cl. 222-146.00H.

Norlin Industries, Inc.: *See—*
Morrison, White H., III; and Vest, Everette L., 4,334,452, Cl. 84-1.160.
Wall, Rendal, 4,334,454, Cl. 84-299.000.

Norman, Barrie E., to Novo Industri A/S. Saccharification of starch hydrolysates. 4,335,208, Cl. 435-96.000.

Normand, Jacques: *See—*
Roberge, Serge; and Normand, Jacques, 4,335,265, Cl. 373-83.000.

Norton Company: *See—*
Keat, Paul P., 4,334,895, Cl. 51-309.000.

Norton, William W., to Baxter Travenol Laboratories, Inc. Potted-typed seal with stress relief and method of making same. 4,334,993, Cl. 210-321.300.

Novo Industri A/S: *See—*
Norman, Barrie E., 4,335,208, Cl. 435-96.000.

Noyes, Mark S.; and Perra, Andrew G., Jr., to Markem Corporation. Reference printing on moving surface. 4,334,471, Cl. 101-228.000.

Nozawa, Hideyo; and Mitsuishi, Tsutomu, to Nippon Kogaku K.K. Zoom lens capable of macro-photography. 4,334,737, Cl. 350-430.000.

Nozawa, Hideyo; and Naito, Hideshi, to Nippon Kogaku K.K. Photographic lens barrel. 4,334,746, Cl. 354-126.000.

Nudenberg, Walter: *See—*
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, 4,335,006, Cl. 252-49.700.

Nyuji, Tomoaki, to Matsushita Electric Industrial Co., Ltd. Key discrimination circuit. 4,335,374, Cl. 340-365.00S.

Oberwinkler, Franz: *See—*
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, 4,334,969, Cl. 204-158.00R.

Occidental Petroleum Corporation: *See—*
Green, Norman W., 4,334,959, Cl. 201-12.000.

Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Switch for direction indicator of vehicle. 4,335,284, Cl. 200-61.270.

Ochiai, Yoshihito: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.

O'Connor, Paul B.: *See—*
MacChesney, John B.; and O'Connor, Paul B., 4,334,903, Cl. 65-3.120.

Oettl, Reinhold, to Stumpp & Kurz GmbH & Co. Device for fastening an object against a wall or the like. 4,334,813, Cl. 411-68.000.

Office National d'Etudes et de Recherches Aerospatiales O.N.E.R.A.: *See—*
Appel, Jean G.; and Dunand, Francois M., 4,334,434, Cl. 73-861.290.

Ogasawara, Hitoshi, to Hitachi, Ltd. Automatic control method and apparatus. 4,335,341, Cl. 318-624.000.

Ogawa, Masaya: *See—*
Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, 4,334,766, Cl. 355-15.000.

Ohashi, Minoru; and Iwaosa, Katsuaki, to Mitsubishi Paper Mills, Ltd. Silver halide photographic materials. 4,335,200, Cl. 430-446.000.

Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, to Hitachi, Ltd. Solid-state imaging device. 4,335,406, Cl. 358-213.000.

Ohkawa, Katsumasa: *See—*
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.

Ohkawara Mfg. Co., Ltd.: *See—*
Okawara, Mikio, 4,334,493, Cl. 118-19.000.

Ohmori, Taiji; and Sato, Makoto, to Honda Giken Kogyo Kabushiki Kaisha. Control and compensation device in an anti-skid control system. 4,335,430, Cl. 364-426.000.

Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, to Konishiroku Photo Industry Co., Ltd. Electrostatic image developing and transfer method uses single component magnetic developer. 4,335,196, Cl. 430-122.000.

Ohshima, Jiro: *See—*
Aoyama, Masaharu; Ohshima, Jiro; and Yonezawa, Toshio, 4,334,349, Cl. 29-579.000.

Ohta, Jun: *See—*
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.

Ohtsuka, Kunio: *See—*
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,441, Cl. 74-868.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,442, Cl. 74-869.000.

Oikawa, Yoko: *See—*
Hanada, Hiroshi; Kasai, Masanao; Hanadate, Hitoshi; and Oikawa, Yoko, 4,335,198, Cl. 430-348.000.

Oinuma, Norimasa: *See—*
Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, 4,334,725, Cl. 316-19.000.

Oka, Tateki; Wada, Kenichi; and Tabuchi, Kenji, to Minolta Camera Kabushiki Kaisha. Magnetic brush developing apparatus. 4,334,497, Cl. 118-698.000.

Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, to Hitachi, Ltd. Control system for electric motor vehicle. 4,335,337, Cl. 318-52.000.

Okawa, Katsumasa: *See—*
Hiraga, Kunikazu; Okawa, Katsumasa; Ikeda, Kenichi; and Hikawa, Masanori, 4,334,914, Cl. 71-100.000.

Okawara, Gunzi: *See—*
Kohno, Masaru; Nakagawa, Yukia; Kada, Takeo; and Okawara, Gunzi, 4,334,431, Cl. 73-597.000.

Okawara, Mikio, to Ohkawara Mfg. Co., Ltd. Rotary drum type apparatus for applying a coating to tablets. 4,334,493, Cl. 118-19.000.

Okazaki, Akira: *See—*
Maruyama, Kunio; and Okazaki, Akira, 4,335,089, Cl. 423-447.400.

Okohira, Kazuo: *See—*
Hirai, Masazumi; Okohira, Kazuo; Murakami, Shozo; and Nakagawa, Hajime, 4,334,921, Cl. 75-60.000.

Olander, Walter K.; and Zamek, Otto S., to General Electric Company. Use of manganese chelate to oxidatively couple phenolic compound in a self-precipitating system. 4,335,234, Cl. 528-214.000.

Oliapuram, Antony, to Varta Batterie A.G. Method of preparing a sintered iron electrode. 4,335,192, Cl. 429-221.000.

Olin Corporation: *See—*
Sakowski, Wal'er J.; Carty, Larry G.; and Foster, Craig A., 4,335,090, Cl. 423-474.000.

Olson, Donald H.: *See—*
Glass, Alastair M.; Kaminow, Ivan P.; and Olson, Donald H., 4,334,774, Cl. 356-152.000.

Olson, Marvin C., to FMC Corporation. Apparatus for collecting cartridge casings. 4,334,375, Cl. 42-1.00T.

Olympus Optical Co., Ltd.: *See—*
Fujimori, Ryo, 4,334,879, Cl. 23-230.00R.
Suzuki, Yoshiro, 4,334,772, Cl. 355-3.0DD.

Omark Industries, Inc.: *See—*
Reynolds, Michael J., 4,334,358, Cl. 30-387.000.

O'Meara, William R.: *See—*
Buescher, Eugene J., 4,334,618, Cl. 206-623.000.

Omega Products: *See—*
Reisch, Franz, 4,334,642, Cl. 224-37.000.

Omnium Financier Aquitaine pour l'Hygiene et la Sante (Sanoli): *See—*
Blanchard, Jean; and Verry, Monique, 4,335,128, Cl. 424-256.000.

Onishi, Masami, to Taiyo Shokai Co., Ltd. Apparatus for transferring strip-like plastics bag material in packaging machine. 4,334,399, Cl. 53-69.000.

Onken, Volker, to U.S. Philips Corporation. Coupling bar for X-ray tomography apparatus. 4,335,312, Cl. 250-445.00T.

Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, to Atlantic Richfield Company. Process for producing methacrylic acid. 4,335,258, Cl. 562-599.000.

Opti Patent-, Forschungs- und Fabrikations-AG: *See—*
Frohlich, Alfons; and Griessbaum, Karl, 4,334,556, Cl. 139-384.00B.

Orban nee Kelemen, Maria: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Orewa Inc.: *See—*
Collins, Keith R., 4,335,110, Cl. 424-145.000.

Ort, Sterling L., to Sol-Fire Inc. Heating system. 4,334,518, Cl. 126-132.000.

Osada, Kenji: *See—*
Ikeda, Yoshi; Osada, Kenji; and Doi, Kazumi, 4,334,842, Cl. 418-45.000.

O'Shaughnessy, Roger D.: *See—*
Lizardo, Renato A.; and O'Shaughnessy, Roger D., 4,335,166, Cl. 428-34.000.

Ostberg, Sven E., to Kockums Industri AB. Allocating means for sawmills. 4,334,606, Cl. 198-443.000.

Osterburg, Gunter: *See—*
Prezelj, Milan; Osterburg, Gunter; and Putz, Joachim E., 4,334,964, Cl. 203-14.000.

Ostlinning, Gunter; and Steinmetz, Alfred, to Schloemann-Siemag Aktiengesellschaft. Discharge roll table with a top cover. 4,334,421, Cl. 72-257.000.

Ota, Keiichi: *See—*
Tsuyumu, Shinji; and Ota, Keiichi, 4,335,236, Cl. 536-18.200.

Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, to Nissan Chemical Industries, Ltd. Method of storing a solid chlorinating agent and an article for storing same. 4,334,610, Cl. 206-205.000.

Otake, Masayuki: *See—*
Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, 4,335,258, Cl. 562-599.000.

Otis Engineering Corporation: *See—*
Arendt, Henry P., 4,334,581, Cl. 166-324.000.

Otsuka, Kazutoshi, to Toyo Kogyo Co., Ltd. Temperature responsive, pressure operated diaphragm valve assembly for automobile engine. 4,334,515, Cl. 123-568.000.

Otsuka Pharmaceutical Co., Ltd.: *See—*
Tsuyumu, Shinji; and Ota, Keiichi, 4,335,236, Cl. 536-18.200.

Owens-Corning Fiberglas Corporation: *See—*
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,335,186, Cl. 428-375.000.

Owens, Dovie A. Soap bar. 4,335,007, Cl. 252-92.000.

Owens-Illinois, Inc.: *See—*
Spanoudis, Louis, 4,334,523, Cl. 126-443.000.

Ozaki, George T., to University of California, The Regents of the. Emergency airway management device. 4,334,534, Cl. 128-207.150.

Ozawa, Tosiyuki: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.

Ozeki, Takeshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Optical sensing system. 4,334,781, Cl. 356-368.000.

Pacer Technology and Resources, Inc.: *See—*
Stock, Hugh J., 4,334,638, Cl. 222-153.000.

Page Engineering Company: *See—*
Rangaswamy, Krishnaswamy, 4,334,587, Cl. 180-8.00R.

Palitex Project-Company GmbH: *See—*
Franzen, Gustav, 4,334,404, Cl. 57-296.000.
von Colson, Godehard, 4,334,405, Cl. 57-300.000.

Palitto, Mauro, to Fiat Auto S.p.A. Oleo-pneumatic shock absorber. 4,334,600, Cl. 188-314.000.

Pallos, Ferenc M.: *See—*
Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., 4,334,911, Cl. 71-93.000.

Palmberg, Paul W., to Perkin-Elmer Corporation, The. Signal detection mechanism from electron multiplier. 4,335,304, Cl. 250-207.000.

Palmer, Robin, to Rovex Limited. Remote control of electrical devices. 4,335,381, Cl. 340-825.210.

Palmer, Roger C.; and Purdue, William J., to Interface Mechanisms, Inc. Wave shaping circuit for electro-optical code readers. 4,335,301, Cl. 235-462.000.

Paprotskaya, Valentina A.: *See—*
Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov, Jury M., 4,334,967, Cl. 204-81.000.

Paradowski, Henri, to Compagnie Francaise d'Etudes et de Construction "Technip". Method of and system for refrigerating a fluid to be cooled down to a low temperature. 4,334,902, Cl. 62-9.000.

Paradyne Corporation: *See*—
Armstrong, Thomas R., 4,335,464, Cl. 375-43.000.
Pardue, Robert M.; and Williams, Richard R., to United States of America, Energy. Dual surface interferometer. 4,334,778, Cl. 356-349.000.
Parik, Michael H., to Professional Photo Products, Inc. Receptacle for negative carriers. 4,334,768, Cl. 355-75.000.
Parker, Delmer G., to Xerox Corporation. Method for developing latent electrostatic images. 4,335,159, Cl. 427-14.100.
Parker, Edward H.: *See*—
Harrell, Robert E.; Harrell, Tedd L.; and Parker, Edward H., 4,334,755, Cl. 354-299.000.
Parker, George A. Multi-purpose light duty garden tool. 4,334,583, Cl. 172-375.000.
Parker, Roger A., to Merrell Dow Pharmaceuticals Inc. Acylated furanyl and thienyl acrylic acids. 4,335,098, Cl. 424-275.000.
Parry, Charles G.; and Sherwood, David L. Gymnasium apparatus. 4,334,675, Cl. 272-63.000.
Parsons, Tony V.: *See*—
Caldecourt, Leonard R.; Evans, Gordon V.; and Parsons, Tony V., 4,335,308, Cl. 250-358.00R.
Pasero, Riccardo: *See*—
Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, 4,334,954, Cl. 159-18.000.
Patil, Babgaunda A.: *See*—
Przybylinski, Phillip; Patil, Babgaunda A.; and Anderson, Gerald B., 4,334,481, Cl. 105-248.000.
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, to Daimler-Benz Aktiengesellschaft. Cap-like cover for an air bag installation. 4,334,699, Cl. 280-731.000.
Paul, William A. Apparatus for handling gasket-forming material. 4,334,636, Cl. 222-642.000.
Paust, Joachim: *See*—
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Peled, Emanuel, to Tadiran Israel Electronics Industries Ltd. Lithium cells. 4,335,191, Cl. 429-94.000.
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Grier, Jesse G.; and Hodges, Jimmie R., 4,335,000, Cl. 210-662.000.
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Dyer, Thomas A., 4,334,607, Cl. 198-487.000.
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Peterson, Richard E. Anaerobic digester technology. 4,334,997, Cl. 210-603.000.
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Pfleger, Frederick W. Hypodermic syringe needle assembly. 4,334,536, Cl. 128-218.0DA.
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Soderberg, John L., 4,334,972, Cl. 204-180.00R.
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, to Glaxo Group Limited. Androstane carbothioates. 4,335,121, Cl. 424-241.000.
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Efner, Howard F., 4,335,004, Cl. 252-48.600.
Faulconer, William M., 4,334,420, Cl. 72-250.000.
Gray, Lew T., 4,334,801, Cl. 405-157.000.
McKay, Dwight L., 4,335,021, Cl. 252-455.00R.
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Pitt, Samuel G. Drink container mounting ground stake. 4,334,661, Cl. 248-146.000.
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Polaroid Corporation: *See*—
Fichter, Peter K., 4,334,750, Cl. 354-275.000.
Johnson, Bruce K.; and Finnemore, Fred M., 4,334,752, Cl. 354-288.000.
Shelton, William A., 4,334,744, Cl. 354-27.000.
Wray, William R., 4,334,740, Cl. 352-11.000.
Polidor, Edward C., to Automation Gages, Inc. Ball slide. 4,334,717, Cl. 308-6.00R.
Pollet, Gilbert: *See*—
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Visser, Frederiks T. L., 4,334,389, Cl. 49-387.000.
Polychrome Corporation: *See*—
Leveille, Joseph, 4,334,758, Cl. 354-319.000.
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Pontagnier, Henri: *See*—
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Portage Electric Products, Inc.: *See*—
Givler, Omar R., 4,335,368, Cl. 337-372.000.

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Baumann, Kurt; Kusche, Peter; and Redecker, Reinhard, 4,335,434, Cl. 364-464.000.
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Neely, James E., Jr., 4,334,941, Cl. 156-107.000.
Rukavina, Thomas G.; and Maryland, Alfred L., 4,335,187, Cl. 428-412.000.

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Stipp, Gordon K., 4,335,149, Cl. 426-386.000.
Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., 4,335,115, Cl. 424-181.000.

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Parik, Michael H., 4,334,768, Cl. 355-75.000.

Przybylinski, Phillip; Patil, Babgaunda A.; and Anderson, Gerald B., to Pullman Incorporated. Fatigue resistant partition sheet assembly. 4,334,481, Cl. 105-248.000.

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Pue, Alan J., to United States of America, America. Optimal vehicle following control system. 4,335,432, Cl. 364-436.000.

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Puri, Ajay K., to Texas Instruments Incorporated. Control interface system for use with a memory device executing variable length instructions. 4,335,277, Cl. 179-1.0SM.

Pusatcioglu, Selami Y.: *See*—
Aschenbach, Louis F.; and Pusatcioglu, Selami Y., 4,335,287, Cl. 200-302.000.

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Alegre, Adolfo P.; Guidote, Armando E.; and Puyat, Alfonso G., 4,335,060, Cl. 261-23.00R.

Queneau, Paul E.; Richter, Horst J.; and Schuhmann, Reinhardt, Jr. Method of introducing particulate material and a gas into a reactor. 4,334,919, Cl. 75-23.000.

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Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.

R.L.S. Industries, Inc.: *See*—
Robillard, Jean J., 4,335,302, Cl. 235-462.000.

R. T. Tool Co. Ltd.: *See*—
Timewell, Richard R., 4,334,445, Cl. 81-177.0PP.

Raabe, Thomas: *See*—
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Smitka, Artur; and Rabe, Josef, 4,334,857, Cl. 432-3.000.

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Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, 4,334,782, Cl. 356-406.000.

Rader, William W., to Hay, Cal W.; and Mann, Frederick. Self sharpening pencils. 4,334,794, Cl. 401-50.000.

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Kelly, James D., 4,335,095, Cl. 424-1.000.

Rainis, Albert E.; and Klopcic, J. Terrence, to United States of America, Army. Warhead fragmentometer. 4,334,423, Cl. 73-35.000.

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Baker, Robert G.; and Ramazzotti, Dario J., 4,334,637, Cl. 222-146.00H.

Ramsay, Michael; and Pratt, Warren, to Hewlett-Packard Company. Raster scan color display system and method having improved pin cushion non-linearity correction. 4,335,333, Cl. 315-371.000.

Rangaswamy, Krishnaswamy, to Page Engineering Company. Offset walking spud. 4,334,587, Cl. 180-8.00R.

Rasile, John: *See*—
Ameen, Joseph G.; Franchak, Nelson P.; Rasile, John; and Rivenburgh, Dennis L., 4,334,949, Cl. 156-642.000.

Ratajczak, Hans-Josef: *See*—
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Rathfelder, Paul: *See*—
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Raush, Russell G., to RCA Corporation. Method and device for separating parts from a strip of material. 4,334,945, Cl. 156-344.000.

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Rautenbach, Jacobus J., deceased; and Rautenbach, Aletta C., executrix, 4,334,799, Cl. 404-124.000.

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Rawson, Lionel E. J.; and Wray, John. Sheet feeding apparatus. 4,334,764, Cl. 355-14.0SH.

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Raychem Corporation: *See*—
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Raytheon Company: *See*—
Teich, Wesley W., 4,335,290, Cl. 219-10.55F.

RCA Corporation: *See*—
Alig, Roger C.; Barkow, William H.; and Gross, Josef, 4,335,366, Cl. 335-211.000.
Armstrong, Lee R., 4,334,427, Cl. 73-118.000.
Aschwanden, Felix, 4,335,412, Cl. 361-50.000.
Berkman, Samuel; and Metzl, Robert, 4,334,948, Cl. 156-608.000.
Bock, Marvin D., 4,334,849, Cl. 425-290.000.
Credelle, Thomas L., 4,335,332, Cl. 315-366.000.
Dinter, Konrad M., 4,335,408, Cl. 360-77.000.
Dischert, William A., 4,335,411, Cl. 360-137.000.
Goldsmith, Norman; and Hsu, Sheng T., 4,334,347, Cl. 29-571.000.
Harbaugh, Willis E., 4,334,829, Cl. 417-49.000.
Holmes, David D., 4,335,402, Cl. 358-147.000.
Marsh, James C., Jr.; and Snell, Marcus L., Jr., 4,335,470, Cl. 455-205.000.
Raush, Russell G., 4,334,945, Cl. 156-344.000.
Warren, Henry R., 4,335,394, Cl. 358-8.000.
Willis, Donald H., 4,335,335, Cl. 315-411.000.
Zorbalas, George S., 4,335,401, Cl. 358-127.000.

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Reber, Harald: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

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Reed, James: *See*—
Apothaker, Richard L.; Reed, James; Croce, Carmen L.; and Wagner, Frederick B., III, 4,334,904, Cl. 65-36.000.

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Adams, Rudolph J., 4,334,570, Cl. 160-1.000.

Reed Rock Bit Company: *See*—
Schumacher, Percy W., 4,334,586, Cl. 175-374.000.

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Reinert, Raymond L.; and Kaufman, Charles D., to General Electric Company. Method and apparatus for automatic end-point detection in tripolyphosphate sequestration of hardness. 4,334,881, Cl. 23-230.00A.

Reisch, Franz, to Omega Products. Athletic equipment mounting apparatus. 4,334,642, Cl. 224-37.000.

Reiter, Karl, to Brown, Boveri & Cie Aktiengesellschaft. Semiconductor device with at least two semiconductor elements. 4,335,392, Cl. 357-75.000.

Relyea, Douglas I.; and Davis, Robert A., to Uniroyal, Inc. Aryl (1-arylsulfonyl) vinyl sulfones. 4,335,142, Cl. 424-337.000.

Remie, Hans J.: *See*—
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Rennie, Andrew L.; and Davis, Alexander, to BOC Limited. Cooling method. 4,334,574, Cl. 164-4.100.

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Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Reynolds, Charles E.; and Whiteman, Robert N., Jr., to AMP Incorporated. Zero insertion force connector clip assembly. 4,334,728, Cl. 339-74.00R.

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Kibby, Robert M., 4,334,917, Cl. 75-10.00R.

Reynolds, Michael J., to Omark Industries, Inc. Vibration dampened saw bars. 4,334,358, Cl. 30-387.000.

Rheem Manufacturing Company: *See—*
Winders, Gordon R.; and MacKay, Fredric M., 4,334,371, Cl. 40-2.00R.

Rhoda, Richard N., to MPD Technology Corporation. Process for preparing cis-$Pt(NH_3)_2Cl_2$. 4,335,087, Cl. 423-413.000.

Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., to Chemotronics International, Inc. Shareholders. Method utilizing a porous vitreous carbon body particularly for fluid heating. 4,334,350, Cl. 29-611.000.

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Richmond, Kenneth D.: *See—*
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Richter Gedeon Vegyeszeti Gyar Rt.: *See—*
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Richter, Horst J.: *See—*
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Mitsuo, Tanaka; Kazuaki, Tagawa; and Takashi, Yano, 4,335,420, Cl. 361-230.000.
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Rieck, Hans-Peter; and Russow, Jurgen, to Hoechst Aktiengesellschaft. Process for the preparation of phosphorus pentachloride. 4,335,085, Cl. 423-300.000.

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Nordschild, Christlieb; Rathfelder, Paul; Rieckert, Horst; and Wolber, Dieter, 4,335,003, Cl. 252-8.900.

Riedel-de Haen Aktiengesellschaft: *See—*
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Riedel, Peter; and Haar, Lucas H., to ITT Industries, Inc. Mechanically controlled vacuum booster. 4,334,459, Cl. 91-369.00B.

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Rieger, Franz: *See—*
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Rion Co., Ltd.: *See—*
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Rios, Gilbert M.; Gibert, Henri; and Baxerres, Jean-Louis, to Agence Nationale de Valorisation de la Recherche (ANVAR). Process for placing a gas phase, at least one liquid phase, and at least one comminuted solid phase in contact. 4,334,998, Cl. 210-617.000.

Rioux, Marc: *See—*
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Ritsema, Irving R.; and Woo, Ji Y., to Bendix Corporation, The. Disc brake and mounting pin assembly therefor. 4,334,599, Cl. 188-73.450.

Rivenburgh, Dennis L.: *See—*
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Roane, Patricia A. Tetrahedron blocks capable of assembly into cubes and pyramids. 4,334,870, Cl. 434-211.000.

Roane, Patricia A. Tetrahedron blocks capable of assembly into cubes and pyramids. 4,334,871, Cl. 434-211.000.

Robbins, Anthony; Catan, Omero C.; and Catan, Jeanne. Three dice wagering game. 4,334,685, Cl. 273-274.000.

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Robert Bosch GmbH: *See—*
Konrath, Karl; and Brink, Gerhard, 4,334,514, Cl. 123-502.000.
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.
Streit, Klaus, 4,335,346, Cl. 323-313.000.

Roberts, Michael G.: *See—*
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,335,186, Cl. 428-375.000.

Robertson, James B.: *See—*
Scott, Charles G.; Robertson, James B.; and Harris, Robert L., 4,335,281, Cl. 179-156.00A.

Robillard, Jean J., to R.L.S. Industries, Inc., a part interest. Bar code scanner using non-coherent light source. 4,335,302, Cl. 235-462.000.

Robin, Marcel, to Commissariat a l'Energie Atomique. Liquid metal cooled nuclear reactor. 4,335,467, Cl. 376-285.000.

Robinson, C. Paul; Jensen, Reed J.; Cotter, Theodore P.; Greiner, Norman R.; and Boyer, Keith, to United States of America, Energy. Isotope separation by laser means. 4,334,883, Cl. 23-293.00R.

Robinton, Michael A.: *See—*
Crandall, Kenneth C.; and Robinton, Michael A., 4,335,354, Cl. 329-126.000.

Robinton Products, Inc.: *See—*
Crandall, Kenneth C.; and Robinton, Michael A., 4,335,354, Cl. 329-126.000.

Robyt, John F.; and Zikopoulos, John N., to Iowa State University Research Foundation, Inc. Method of inhibiting dextransucrase and oral compositions for use therein. 4,335,100, Cl. 424-48.000.

Rodger, Erwin, to Litton Systems, Inc. Toner mechanism for electrophotographic recorder. 4,334,760, Cl. 355-3.0DD.

Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, to Nixdorf Computer AG. Electrical connector unit. 4,334,732, Cl. 339-176.0MP.

Rogers, Alfred M., III: *See—*
Magee, Robert C.; and Rogers, Alfred M., III, 4,334,716, Cl. 308-6.00C.

Rogers Corporation: *See—*
Traut, G. Robert, 4,335,180, Cl. 428-303.000.

Rogers, Gregory B.; Wildman, John R.; and Breslow, Jeffrey D., to Marvin Glass & Associates. Toy razor. 4,334,384, Cl. 46-39.000.

Rogers, Henry F., Sr. Cabinet for a kitchen blender, mixer, grinder, et al. 4,334,724, Cl. 312-280.000.

Rogic, Milorad M.: *See—*
Demmin, Timothy R.; and Rogic, Milorad M., 4,335,010, Cl. 252-189.000.

Rohm and Haas Company: *See—*
Beier, William C.; and Hodder, James J., 4,334,876, Cl. 8-94.19C.
Johnson, Wayne O.; and Yih, Roy Y., 4,335,249, Cl. 560-11.000.

Rohm, Pharma GmbH: *See—*
Johnsen, Andreas, 4,335,119, Cl. 424-229.000.

Rohrbein, Roland: *See—*
Schmitz, Johannes; and Rohrbein, Roland, 4,335,364, Cl. 333-33.000.

Rohrle, Manfred: *See—*
Kohnert, Hans J.; Graf, Walter; Jakl-Banka, Ladislaus; and Rohrle, Manfred, 4,334,507, Cl. 123-193.00P.

Roldiva, Inc.: *See—*
Brogan, Thomas R., 4,335,084, Cl. 423-235.000.

Roman, Bernard J., to Bell Telephone Laboratories, Incorporated. Advantageous fabrication technique for devices relying on magnetic properties. 4,334,950, Cl. 156-643.000.

Roof Control, Inc.: *See—*
Morgan, Bennie E., 4,334,805, Cl. 405-261.000.

Roos, John C., to Bunker Ramo Corporation. Logarithmic amplifier calibration means. 4,335,384, Cl. 343-114.000.

Roques, Henri: *See—*
Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, 4,335,001, Cl. 210-708.000.

Rosenquist, Niles R., to General Electric Company. Polycarbonate resin impact modified with polyolefins and containing polyorganosiloxane fluids. 4,335,032, Cl. 524-269.000.

Rosevear, Alan: *See—*
Miles, Brynley J.; and Rosevear, Alan, 4,335,017, Cl. 252-430.000.

Ross, Ira J.: *See—*
Payne, Fredrick A.; and Ross, Ira J., 4,334,484, Cl. 110-210.000.

Ross, Walter A.: *See—*
Van Ess, John C., 4,335,422, Cl. 362-388.000.

Ross, Warren K. Jacking mechanism for a portable sawmill. 4,334,669, Cl. 254-130.000.

Rossi, Mario: *See—*
Eberlin, Philippe; and Rossi, Mario, 4,335,452, Cl. 367-134.000.

Rossmann, Axel, to MTU Motoren- und Turbinen-Union Munchen GmbH. Circumferential gap seal for axial-flow machines. 4,334,822, Cl. 415-113.000.

Rossmo, William. Medication dispenser. 4,334,617, Cl. 206-534.000.

Roueche, Armand, to Ciba-Geigy Corporation. Pigment formulations, processes for their preparation and their use for pigmenting aqueous, alcoholic or aqueous-alcoholic printing ink systems and colored lacquer systems. 4,334,932, Cl. 524-191.000.

Roussel Uclaf: *See—*
Nedelec, Lucien; Frechet, Daniel; Dumont, Claude; Plassard, Guy; and Brown, Neil L., 4,335,135, Cl. 424-274.000.

Rovex Limited: *See—*
Palmer, Robin, 4,335,381, Cl. 340-825.210.

Roy, Joseph A.: *See—*
Latassa, Frank M.; Ray, John G.; and Roy, Joseph A., 4,335,326, Cl. 313-177.000.

Rubino, Victor H. Dental instruments. 4,334,864, Cl. 433-158.000.

Ruf, Gebhard, to Dr. Ing. h.c.F. Porsche Aktiengesellschaft. Rear axle suspension for automotive vehicles. 4,334,698, Cl. 280-690.000.

Rugg, Barry A.: *See*—
Axelrod, Sydney; Brenner, Walter; and Rugg, Barry A., 4,334,477, Cl. 102-435.000.

Rukavina, Thomas G.; and Maryland, Alfred L., to PPG Industries, Inc. Method for bonding polycarbonate to metal. 4,335,187, Cl. 428-412.000.

Rumph, Joel D. Door lock. 4,334,705, Cl. 292-288.000.

Russow, Jurgen: *See*—
Rieck, Hans-Peter; and Russow, Jurgen, 4,335,085, Cl. 423-300.000.

Rutkowski, Edward V., Jr.: *See*—
Joest, William F., III; McCray, William R.; and Rutkowski, Edward V., Jr., 4,334,792, Cl. 400-279.000.

Ryan, James W.; and Chung, Alfred, to Ventrex Laboratories, Inc. High sensitivity assays for angiotensin converting enzyme. 4,335,041, Cl. 260-112.50R.

Ryan, LeRoy J., Jr. Visually descriptive information transmission, storage, and retrieval set. 4,334,771, Cl. 355-133.000.

Rzeszewski, Theodore S., to Matsushita Electric Corporation. Automatic equalization system for television receiver. 4,335,396, Cl. 358-21.00R.

Sachim S.A.: *See*—
Denzler, Eric-Alain, 4,335,045, Cl. 548-566.000.

Sachs, Emanual M.; and Mackintosh, Brian H., to Mobil Tyco Solar Energy Corporation. Crystal growth furnace with trap doors. 4,335,081, Cl. 422-246.000.

Safrin, Leopold: *See*—
Barker, Graham; Safrin, Leopold; and Barabash, Martin J., 4,335,025, Cl. 252-550.000.

Saggese, Vincent A. Slotted concrete pipe. 4,335,169, Cl. 428-36.000.

St. Denis, Andrew R. Weight monitoring device for strip metal stock. 4,335,439, Cl. 364-562.000.

Saint Gobain Industries: *See*—
Delcoigne, Adrien; and Lanneau, Jacques, 4,334,786, Cl. 366-132.000.

Saito, Masao; Aoya, Hiroshi; and Yoshida, Naruhito, to Tokyo Shibaura Denki Kabushiki Kaisha. Electrophotographic copying machine. 4,334,761, Cl. 355-3.00R.

Saito, Syuichiro; Date, Nobuaki; Suzuki, Ryoichi; and Sugiura, Yoji, to Canon Kabushiki Kaisha. Camera having an electromagnetically driven shutter. 4,334,749, Cl. 354-234.000.

Sakai, Katsuo, to Ricoh Company, Ltd. Two color electrophotographic process and material. 4,335,194, Cl. 430-42.000.

Sakamoto, Tamio: *See*—
Tani, Katsuhiko; and Sakamoto, Tamio, 4,334,886, Cl. 23-303.000.

Sakane, Toshio; and Tsunekawa, Tokuichi, to Canon Kabushiki Kaisha. MOS-Image sensor. 4,335,405, Cl. 358-213.000.

Sakowski, Walter J.; Carty, Larry G.; and Foster, Craig A., to Olin Corporation. Preparing calcium hypochlorite from triple salt. 4,335,090, Cl. 423-474.000.

Sakshaug, Eugene C.; and Stetson, Earl W., to General Electric Company. Heat sink thermal transfer system for zinc oxide varistors. 4,335,417, Cl. 361-127.000.

Sakurai, Hisaya; Katayama, Yoshihiko; Ikegami, Tadashi; and Furusato, Masayasu, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for polymerizing an α-olefin. 4,335,229, Cl. 526-122.000.

Salathe, Rene P.; Badertscher, E. Gerhard; and Luthy, Willy A. R., to Institut fur Angewandte Physik der Universitat Bern. Semiconductor device and a method of contacting a partial region of a semiconductor surface. 4,335,362, Cl. 372-46.000.

Salomon, Georges P. J., to Ets. Francois Salomon et Fils, S. A. Process for manufacturing a sports shoe and the shoe itself. 4,334,367, Cl. 36-117.000.

Salomon, Robert E., to Temple University. Process of converting wind energy to elemental hydrogen and apparatus therefor. 4,335,093, Cl. 423-644.000.

Salvat, Francois; Bouko, Jean; and Le Foll, Jean, to Thomson-CSF. Radar antenna with rotating linear polarization designed to reduce jamming. 4,335,387, Cl. 343-756.000.

Salzmann, Theodor: *See*—
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.

Samuels, Ronald L.: *See*—
Hedgepeth, John M.; Samuels, Ronald L.; and Stammreich, John, 4,334,391, Cl. 52-108.000.

Sanada, Sinichi: *See*—
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.

Sanders, James M.: *See*—
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.

Sandoz, Inc.: *See*—
Galantay, Eugene E., 4,335,124, Cl. 424-248.400.

Sandoz Ltd.: *See*—
Baumann, Hans-Peter, 4,335,259, Cl. 564-290.000.

Sandvik Conveyor GmbH: *See*—
Guttinger, Manfred; and Schermutzki, Konrad, 4,334,468, Cl. 100-93.0RP.

Sangamo Weston, Inc.: *See*—
Jerrim, John W., 4,335,447, Cl. 364-900.000.

Santiago, Andres; and Santiago, Enrique, to Zeuna-Staerker KG. Catalyzer for detoxifying exhaust gases from internal combustion engines. 4,335,077, Cl. 422-179.000.

Santiago, Enrique: *See*—
Santiago, Andres; and Santiago, Enrique, 4,335,077, Cl. 422-179.000.

Santo, Philip J. Perimeter support for a waterbed mattress. 4,334,331, Cl. 5-452.000.

Sanyo Electric Co., Ltd.: *See*—
Hosoya, Nobukazu, 4,335,334, Cl. 315-408.000.

Sarvestany, Asadollah A.: *See*—
Hardwick, John P.; Pezet, Michael J.; Sarvestany, Asadollah A.; and Satharasinghe, Dayananda, 4,334,650, Cl. 241-236.000.

Sasaki, Hiroshi, to Yamaha Hatsudoki Kabushiki Kaisha. Internal combustion engine having an engine driven oil pump. 4,334,508, Cl. 123-195.00A.

Sasdelli, Kenneth R.: *See*—
Spargo, John D.; and Sasdelli, Kenneth R., 4,334,688, Cl. 277-175.000.

Satharasinghe, Dayananda: *See*—
Hardwick, John P.; Pezet, Michael J.; Sarvestany, Asadollah A.; and Satharasinghe, Dayananda, 4,334,650, Cl. 241-236.000.

Sato, Makoto: *See*—
Ohmori, Taiji; and Sato, Makoto, 4,335,430, Cl. 364-426.000.

Sato, Yo, to Kabushiki Kaisha Sato. Pressure sensitive label strip. 4,335,172, Cl. 428-42.000.

Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, to Nippon Seiko Kabushiki Kaisha. Ball bearing. 4,334,721, Cl. 308-193.000.

Savin Corporation: *See*—
Landa, Benzion, 4,334,762, Cl. 355-8.000.

Sawyer, Bruce A., to Xynetics, Inc. Linear motor. 4,335,338, Cl. 318-135.000.

Sawyer, Roy D.: *See*—
Barnett, Jack W.; and Sawyer, Roy D., 4,335,072, Cl. 422-53.000.

Scala, Luciano C.: *See*—
Carlson, Nancy W.; Westervelt, Dean C.; and Scala, Luciano C., 4,334,973, Cl. 204-181.00R.

Scalley, Douglas M.; and Mullin, John M. Vehicle security device. 4,335,370, Cl. 340-64.000.

Schaeffer, Daniel D. Container for an alarm transmitter adapted for insertion into a wall. 4,335,375, Cl. 340-539.000.

Schaffelhofer, Iwo: *See*—
Alfranseder, Josef; Mayer, Sigmund; Rebsdat, Siegfried; Riedl, Josef; and Schaffelhofer, Iwo, 4,335,014, Cl. 252-412.000.

Schaffer, Bernhard: *See*—
Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, 4,335,456, Cl. 370-58.000.

Schauffele, Gunther, to Werner & Pfleiderer. Injection molding device for molding bodies of natural or synthetic rubber. 4,334,847, Cl. 425-227.000.

Scheib, Rudi. Sledge with tiltable runners. 4,334,691, Cl. 280-21.00A.

Scheie, Carl E., to Brunswick Corporation. Game apparatus for use with a paddle and a ball. 4,334,681, Cl. 273-30.000.

Scheingold, William S.; and Youngfleish, Frank C., to AMP Incorporated. Connector for a leadless electronic package. 4,334,727, Cl. 339-17.0CF.

Scheinpflug, Hans: *See*—
Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, 4,334,905, Cl. 71-27.000.

Schenk, Walter: *See*—
Schulte-Elte, Karl H.; Becker, Joseph J.; and Schenk, Walter, 4,335,262, Cl. 568-361.000.

Schermutzki, Konrad: *See*—
Guttinger, Manfred; and Schermutzki, Konrad, 4,334,468, Cl. 100-93.0RP.

Schill & Seilacher GmbH & Co.: *See*—
Nordschild, Christlieb; Rathfelder, Paul; Rieckert, Horst; and Wolber, Dieter, 4,335,003, Cl. 252-8.900.

Schindler, Achim: *See*—
Stacklies, Horst; and Schindler, Achim, 4,334,748, Cl. 354-234.000.

Schlegel, Miklos: *See*—
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Schlegel, Thomas: *See*—
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.

Schleimer, Francois: *See*—
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.

Schloemann-Siemag Aktiengesellschaft: *See*—
Ostlinning, Gunter; and Steinmetz, Alfred, 4,334,421, Cl. 72-257.000.

Schlumberger Technology Corporation: *See*—
Lacour-Gayet, Philippe J., 4,335,353, Cl. 324-366.000.

Schmelzle, Carl W.: *See*—
Colwell, William L.; and Schmelzle, Carl W., 4,334,730, Cl. 339-130.00C.

Schmeykal, Rudolf: *See*—
Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, 4,334,732, Cl. 339-176.0MP.

Schmidlin, Albertus E.: *See*—
Goes, Michael J.; Masly, John R.; and Schmidlin, Albertus E., 4,334,478, Cl. 102-529.000.

Schmidt, Donald L.: *See*—
Clarke, Donald H.; Pomranky, George J.; and Schmidt, Donald L., 4,335,219, Cl. 521-128.000.
Schmitt, Frederick L.: *See*—
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,335,009, Cl. 252-187.270.
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.
Klemarczyk, Philip T.; Sanders, James M.; Vock, Manfred H.; Vinals, Joaquin F.; Schmitt, Frederick L.; and Granda, Edward J., 4,335,152, Cl. 426-538.000.
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Granda, Edward J.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,335,002, Cl. 252-1.000.
Schmitz, Johannes; and Rohrbein, Roland, to Licentia Patent-Verwaltungs-GmbH. Transition from a coaxial cable to a multipole plug-in connector. 4,335,364, Cl. 333-33.000.
Scholtholt, Josef: *See*—
Grawinger, Otto; Raabe, Thomas; Beyerle, Rudi; Scholtholt, Josef; and Nitz, Rolf-Eberhard, 4,335,123, Cl. 424-246.000.
Scholz, Eugen; and Sievert, Wolfgang, to Riedel-de Haen Aktiengesellschaft. Process for the manufacture of hydroxylammonium perchlorate. 4,335,091, Cl. 423-476.000.
Schon, Klaus-Peter: *See*—
Back, Gunter; and Schon, Klaus-Peter, 4,334,472, Cl. 101-382.0MV.
Schonenberger, Rolf, to Schonenberger, Wilhelm. Movable surface apparatus, particularly for physical exercise and training. 4,334,676, Cl. 272-69.000.
Schonenberger, Wilhelm: *See*—
Schonenberger, Rolf, 4,334,676, Cl. 272-69.000.
Schott, Karl: *See*—
Kubis, Heribert; and Schott, Karl, 4,334,836, Cl. 417-364.000.
Schottel-Werft Josef Becker GmbH & Co., KG: *See*—
Seitzinger, Kurt; and Lais, Siegfried, 4,334,489, Cl. 114-144.00R.
Schramm, Georg: *See*—
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, 4,334,969, Cl. 204-158.00R.
Schreiber, Jay: *See*—
Brown, Bryce K.; Correll, Stephen; Schreiber, Jay; Mayfield, Lawrence E.; and Jenkins, Darrell D., 4,335,382, Cl. 343-8.000.
Schreiner, Charles P., to Westinghouse Electric Corp. Tote guide. 4,334,715, Cl. 308-3.600.
Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, to Siemens Aktiengesellschaft. Use of nickel-cobalt sintered materials for electric relay contacts. 4,334,929, Cl. 75-246.000.
Schuhmann, Reinhardt, Jr.: *See*—
Queneau, Paul E.; Richter, Horst J.; and Schuhmann, Reinhardt, Jr., 4,334,919, Cl. 75-23.000.
Schulte-Elte, Karl H.; Becker, Joseph J.; and Schenk, Walter, to Firmenich SA. Process for the preparation of muscone. 4,335,262, Cl. 568-361.000.
Schultheiss, Christoph: *See*—
Christiansen, Jens; and Schultheiss, Christoph, 4,335,465, Cl. 376-156.000.
Schultz, Gerald A.: *See*—
Kolczynski, James R.; and Schultz, Gerald A., 4,335,230, Cl. 526-228.000.
Schulze, Stephen R.: *See*—
Flood, Paul W.; Mason, Charles D.; and Schulze, Stephen R., 4,335,223, Cl. 525-179.000.
Schumacher, Percy W., to Reed Rock Bit Company. Inserts for drilling bits. 4,334,586, Cl. 175-374.000.
Schwan, Thomas J.; and Gray, Joseph E., to Morton-Norwich Products, Inc. Antifungal composition. 4,335,130, Cl. 424-258.000.
Schwartz, Morton W.: *See*—
Gaston, Paul; and Schwartz, Morton W., 4,334,413, Cl. 63-2.000.
Scifres, Donald R.: *See*—
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., 4,335,461, Cl. 372-45.000.
SCM Corporation: *See*—
Rikon, Steven M.; and del Valle, Frank, 4,335,153, Cl. 426-540.000.
Ting, Vincent W.; Woo, James T. K.; and Borovicka, David A., Sr., 4,335,028, Cl. 524-504.000.
Varvil, R. Douglas, 4,335,157, Cl. 426-606.000.
Scott, Charles G.; Robertson, James B.; and Harris, Robert L., to Plantronics, Inc. Post-auricle contoured headset for two-way voice communication. 4,335,281, Cl. 179-156.00A.
Scott, William G.; Matthews, Edgar W., Jr.; Luh, Howard H. S.; and Klein, Charles A., to Ford Aerospace & Communications Corp. Null control of multiple beam antenna. 4,335,388, Cl. 343-854.000.
Seachman, Ned J., to Xerox Corporation. Twisting geometry scanner utilizing staggered lens array. 4,335,305, Cl. 250-216.000.
Sechrist, Edward L. Sound reproduction system. 4,334,593, Cl. 181-144.000.
Seckinger, Erich, to Interzeag AG. Method of perimetric examination of visual fields. 4,334,738, Cl. 351-39.000.
Seckinger, Erich, to Interzeag AG. Method of graphically displaying the results of repeated perimetric examination of visual fields. 4,334,739, Cl. 351-39.000.
Sedlacek, Lubor: *See*—
Vagac, Svetozar; Kostka, Anton; Carsky, Milan; Sedlacek, Lubor; Navratil, Jaroslav; Mueller, Jiri; Kmeco, Rudolf; and Knob, Vaclav, 4,334,984, Cl. 209-3.000.
Seidel, Heinz H., to GTE Products Corporation. Cutting insert. 4,334,808, Cl. 407-114.000.
Seitzinger, Kurt; and Lais, Siegfried, to Schottel-Werft Josef Becker GmbH & Co., KG. Reversing mechanism for steerable propellers, jet rudders or other drive mechanisms of ships. 4,334,489, Cl. 114-144.00R.
Seki, Shojiro, to Nissan Motor Company, Limited. Guard molding for outer surfaces of a car. 4,334,706, Cl. 293-126.000.
Sentrol, Inc.: *See*—
Holce, Thomas J.; and Huckins, Charles M., 4,335,270, Cl. 174-52.00R.
Serany, Frank J.: *See*—
Wilson, David A.; and Serany, Frank J., 4,334,535, Cl. 128-214.00D.
Servimetal: *See*—
du Manoir de Juaye, Pierre; Guerit, Pierre; Pollet, Gilbert; and Hicter, Jean-Marie, 4,334,990, Cl. 210-186.000.
Sethofer, Nicholas L., to Timex Corporation. Cyclohexyl-dioxane liquid crystalline compounds. 4,335,011, Cl. 252-299.100.
Seybold, Albert: *See*—
Patzelt, Helmut; Seybold, Albert; and Budde, Volker, 4,334,699, Cl. 280-731.000.
Sharp, Peter A. Wind or fluid current turbine. 4,334,823, Cl. 416-119.000.
Shaw, Wilfrid G.: *See*—
Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., 4,335,056, Cl. 260-465.300.
Shay, Robert H.; and Ellison, Thomas L., to Air Products and Chemicals, Inc. Inhibited annealing of ferrous metals containing chromium. 4,334,938, Cl. 148-16.700.
Shell Oil Company: *See*—
Bozarth, Gene A., 4,334,916, Cl. 71-120.000.
Kramer, Petrus A., 4,335,253, Cl. 560-124.000.
Slaugh, Lynn H., 4,335,022, Cl. 252-455.00R.
Shelton, William A., to Polaroid Corporation. Photographic apparatus having synchronized flash. 4,334,744, Cl. 354-27.000.
Shepherd, William C. Diet control apparatus and method. 4,335,300, Cl. 235-123.000.
Sherman, Andrew M., to Ford Motor Company. Oxidation resistant steel alloy. 4,334,923, Cl. 75-124.000.
Sherwood, David L.: *See*—
Parry, Charles G.; and Sherwood, David L., 4,334,675, Cl. 272-63.000.
Sherwood, Loran D.; Keegan, Jack J.; and Gniewek, Stephen A., to Beckman Instruments, Inc. NOx Conversion efficiency detector. 4,335,073, Cl. 422-83.000.
Shibata, Noriyoshi: *See*—
Inada, Masami; Kawabata, Yasuhiro; and Shibata, Noriyoshi, 4,334,837, Cl. 417-393.000.
Shibayama, Masakazu: *See*—
Hiraga, Kunikazu; Shibayama, Masakazu; Ohkawa, Katsumasa; and Harada, Tatsuo, 4,334,915, Cl. 71-108.000.
Shiga, Kazumasa, to Matsushita Electric Industrial Company, Limited. Biofeedback system. 4,334,545, Cl. 128-732.000.
Shimada, Fumio; and Hashimoto, Teiji, to Canon Kabushiki Kaisha; and Canon Denshi Kabushiki Kaisha, part interest to each. Device for preventing spring-back of shutter blade. 4,334,747, Cl. 354-147.000.
Shimada, Masao: *See*—
Asai, Yoshiyuki; Shimada, Masao; and Soda, Kenji, 4,335,209, Cl. 435-108.000.
Shimamura, Yoshihiro: *See*—
Hara, Takanori; and Shimamura, Yoshihiro, 4,335,340, Cl. 318-282.000.
Shinriki, Tatsuo, to Height Inc. Apparatus for encrusting jam. 4,334,464, Cl. 99-450.600.
Shinwa Kabushiki Kaisha: *See*—
Naito, Kyohei, 4,334,655, Cl. 242-191.000.
Shiraishi, Hideo: *See*—
Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, 4,335,369, Cl. 338-34.000.
Shiraiwa, Yukio: *See*—
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, to Canon Kabushiki Kaisha. Liquid droplet ejecting recording head. 4,335,389, Cl. 346-140.00R.
Shock, John R.: *See*—
Michewich, Daniel J.; Shock, John R.; and Juers, Daniel F., 4,335,199, Cl. 430-434.000.
Shop-Vac Corporation: *See*—
Miller, Jonathan; Fegan, Richard; Berfield, Robert C.; Hiester, Kenneth R.; and Wacek, Rudolph W., 4,334,337, Cl. 15-326.000.
Showa Denko Kabushiki Kaisha: *See*—
Suzaka, Yukinori, 4,334,783, Cl. 366-69.000.
Shugart, Wayne L., Sr.: *See*—
Chalmers, Edward L., II; and Shugart, Wayne L., Sr., 4,334,368, Cl. 36-121.000.
Siegrand Corporation: *See*—
Grandell, William A., 4,334,418, Cl. 72-164.000.
Siemens Aktiengesellschaft: *See*—
Anger, Klaus; and Frosien, Juergen, 4,335,309, Cl. 250-396.00R.
Blaschke, Felix, 4,335,444, Cl. 364-815.000.
Dreiseitl, Walter; Kollensperger, Dieter; Salzmann, Theodor; Schlegel, Thomas; and Weigel, Wolf-Dieter, 4,335,343, Cl. 318-798.000.
Franke, Kurt, 4,335,310, Cl. 250-408.000.
Gaiser, Rainer; Hagen, Rolf; and Schaffer, Bernhard, 4,335,456, Cl. 370-58.000.

Grassl, Hans-Peter, 4,335,317, Cl. 250-578.000.
Hirschmann, Peter, 4,335,455, Cl. 370-29.000.
Kriedt, Hans; and Dietze, Andreas, 4,335,359, Cl. 330-257.000.
Lutz, Herbert; and Pfeifer, Rolf, 4,335,311, Cl. 250-409.000.
Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, 4,334,929, Cl. 75-246.000.
Waerve, Hans; and Djurson, Sten, 4,335,315, Cl. 250-523.000.
Zoeke, Siegfried; and Stuerzer, Anton, 4,334,955, Cl. 159-44.000.

Sievert, Wolfgang: *See—*
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Sigma-Tau Industrie Farmaceutiche Riunite S.p.A.: *See—*
de Witt, Paolo; and Diamanti, Enrico, 4,335,256, Cl. 562-450.000.

Signer, Hans R., to Industrial Tectonics, Inc. Split-inner-ring ball bearing with lubrication structure. 4,334,720, Cl. 308-187.000.

Signetics Corporation: *See—*
Hoeft, Werner H., 4,335,358, Cl. 330-255.000.

Simmons, John J.; and Hutson, Douglas W., to Ellis, Giles Arthur, a part interest. Cap for a chimney. 4,334,460, Cl. 98-83.000.

Simon, Kalman: *See—*
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Simonidesz nee Vermes, Ilona: *See—*
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.

Simonsson, Leif R.: *See—*
Claeson, Karl G.; Aurell, Leif E.; Simonsson, Leif R.; and Arielly, Salo, 4,335,204, Cl. 435-23.000.

Simpson, Danny E.: *See—*
Chase, Richard A.; Simpson, Danny E.; and Williams, David M., 4,334,382, Cl. 46-1.00R.

Singer Company, The: *See—*
Harbeck, Martin E.; and Harbin, Henry C., 4,334,336, Cl. 15-322.000.
Sumerau, Russell, 4,334,390, Cl. 51-170.0EB.

Singh, Ajaib, to Uniroyal, Inc. Sulfur curable millable polyurethane gum. 4,335,231, Cl. 528-49.000.

Singh, Baldev: *See—*
Lesher, George Y.; and Singh, Baldev, 4,335,132, Cl. 424-263.000.

Sirrenberg, Wilhelm: *See—*
Colln, Reimer; Sirrenberg, Wilhelm; Behrenz, Wolfgang; and Stendel, Wilhelm, 4,335,117, Cl. 424-217.000.

Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., to Compair Industrial Ltd. Regenerative rotodynamic machines. 4,334,821, Cl. 415-53.00T.

Skinner, Ronald W.: *See—*
Dalton, Augustine I., Jr.; and Skinner, Ronald W., 4,335,092, Cl. 423-584.000.

Skomoroski, Robert M.: *See—*
Dettling, Joseph C.; Mooney, John J.; Skomoroski, Robert M.; and Hindin, Saul G., 4,335,023, Cl. 252-466.0PT.

Slaugh, Lynn H., to Shell Oil Company. Modified silica composition. 4,335,022, Cl. 252-455.00R.

Sloane, Edwin A., to Fairchild Camera & Instrument Corp. Method for analyzing a digital-to-analog converter with a nonideal analog-to-digital converter. 4,335,373, Cl. 340-347.0CC.

Slovenska vysoka skola technicka: *See—*
Tkac, Alexander; and Cvengros, Jan, 4,334,952, Cl. 159-11.00R.

Slysh, Paul, to General Dynamics Corporation. Device and method for assembling large space structures. 4,334,816, Cl. 414-10.000.

Smit Ovens Nijmegen B.V.: *See—*
Graat, Johannes W.; and Remie, Hans J., 4,334,854, Cl. 431-8.000.

Smith, Donald T.: *See—*
Reed, William C.; and Smith, Donald T., 4,335,348, Cl. 324-51.000.

Smith, Duaine W., to Amana Refrigeration, Inc. Microwave oven. 4,335,289, Cl. 219-10.55F.

Smith International, Inc.: *See—*
Upton, Robert G., 4,334,585, Cl. 175-329.000.

Smith, J. Craig, Jr.: *See—*
Baldock, K. Paul; and Smith, J. Craig, Jr., 4,335,349, Cl. 324-62.000.

Smitka, Artur; and Rabe, Josef, to BBC Brown, Boveri & Company, Limited. Crucible furnace. 4,334,857, Cl. 432-3.000.

Smolen, Victor F. Method and apparatus for automatic dissolution testing of products. 4,335,438, Cl. 364-497.000.

Smoot, A. Park: *See—*
Jensen, Keith A., 4,334,346, Cl. 29-429.000.

Smyser, Charles F.: *See—*
Snoeyenbos, Glenn H.; Weinack, Olga M.; and Smyser, Charles F., 4,335,107, Cl. 424-93.000.

Snamprogetti S.p.A.: *See—*
Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, 4,334,954, Cl. 159-18.000.

Snell, Marcus L., Jr.: *See—*
Marsh, James C., Jr.; and Snell, Marcus L., Jr., 4,335,470, Cl. 455-205.000.

Snoeyenbos, Glenn H.; Weinack, Olga M.; and Smyser, Charles F. Mixture to protect poultry from salmonella. 4,335,107, Cl. 424-93.000.

Soar, Geoffrey K.: *See—*
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Societe Anonyme D.B.A.: *See—*
Carre, Jean-Jacques; and Meynier, Guy, 4,334,712, Cl. 303-24.00C.

Societe Anonyme dite Compagnie Europeenne d'Accumulateurs: *See—*
Boniface, Jean-Paul; and Ponceblanc, Gilbert, 4,334,846, Cl. 425-126.00R.

Societe Anonyme Francaise du Ferodo: *See—*
Dauvergne, Jean L. R., 4,334,713, Cl. 303-54.000.

Societe d'Etudes de Machines Thermiques S.E.M.T.: *See—*
Daugas, Claude, 4,334,409, Cl. 60-618.000.

Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "SNECMA": *See—*
Bouiller, Jean G.; and Joubert, Raymond J. M., 4,334,827, Cl. 416-220.00R.

Soda, Kenji: *See—*
Asai, Yoshiyuki; Shimada, Masao; and Soda, Kenji, 4,335,209, Cl. 435-108.000.

Soderberg, John L., to Pharmacia Fine Chemicals AB. Ampholyte and its use in separation processes. 4,334,972, Cl. 204-180.00R.

Sokolov, Jury M.: *See—*
Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov. Jury M., 4,334,967, Cl. 204-81.000.

Sol-Fire Inc.: *See—*
Ort, Sterling L., 4,334,518, Cl. 126-132.000.

Solar Optimizing Systems, Inc.: *See—*
Jacoby, Walter, 4,334,521, Cl. 126-425.000.

Sollich, Helmut. Method for making confections. 4,335,147, Cl. 426-295.000.

Somemiya, Akiyoshi; Miyashita, Shunitsu; and Azuma, Masaaki, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Polyphenylene ether copolymers. 4,335,233, Cl. 528-211.000.

Sone, Yoshiaki: *See—*
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.

Sony Corporation: *See—*
Koizumi, Akio; Nakazawa, Hiroshi; and Endo, Akira, 4,335,423, Cl. 363-21.000.
Tamura, Eiji, 4,335,397, Cl. 358-29.000.

Sopory, Umesh K., to Raychem Corporation. Novel PTC devices and their preparation. 4,334,351, Cl. 29-611.000.

Sorkin, Howard, to Timex Corporation. 5-Substituted-2-(4-cyanophenyl)-1,3-dioxanes. 4,335,012, Cl. 252-299.610.

South African Inventions Development Corporation, The: *See—*
Hasson, Victor H.; and Von Bergmann, Hubertus M., 4,335,462, Cl. 372-85.000.

Souzu, Isao: *See—*
Kubo, Kazuo; Ito, Noriki; Souzu, Isao; Isomura, Yasuo; and Homma, Hiroshige, 4,335,129, Cl. 424-258.000.

Sovey, James S.: *See—*
Bill, Robert C.; and Sovey, James S., 4,335,190, Cl. 428-623.000.

Spamer, William S.; and Barker, Robert C., to Mead Corporation, The. Means for attaching a panel to an upright. 4,334,374, Cl. 40-606.000.

Spanoudis, Louis, to Owens-Illinois, Inc. Solar energy collector having solar selective coating of low reflectance. 4,334,523, Cl. 126-443.000.

Spargo, John D.; and Sasdelli, Kenneth R., to United States of America, Navy. Fluid lubricated floating bushing seal. 4,334,688, Cl. 277-175.000.

Spector, George: *See—*
Burns, Anthony G.; and Spector, George, 4,334,360, Cl. 33-42.000.
Ferguson, Arthur; and Spector, George, 4,334,461, Cl. 98-119.000.
Tanner, Douglas; and Spector, George, 4,334,469, Cl. 100-110.000.
Wilcox, Charles E.; and Spector, George, 4,334,869, Cl. 434-208.000.

Speechley, Richard E.: *See—*
Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.

Spencer, Alwyn: *See—*
Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,054, Cl. 260-465.00G.
Blaser, Hans-Ulrich; Reinehr, Dieter; and Spencer, Alwyn, 4,335,055, Cl. 260-465.00K.

Spencer, Michael. Hydroxyapatite and its preparation. 4,335,086, Cl. 423-308.000.

Spiegelberg, Delvin A. High pressure hay rebaler. 4,334,466, Cl. 100-4.000.

Spire Corporation: *See—*
Little, Roger G., 4,335,297, Cl. 219-121.0EQ.

Spoonts, Paul R. A., III. Capo. 4,334,457, Cl. 84-318.000.

Sprecker, Mark A.: *See—*
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.

Sridhar, T. Sampat, to Canada, Atomic Energy of, Limited. Apparatus for evaporating radioactive liquid and calcinating the residue. 4,334,953, Cl. 159-11.00R.

Srivastava, Gopal K., to Zenith Radio Corporation. Horizontal countdown system for television receivers. 4,335,403, Cl. 358-148.000.

Stacklies, Horst; and Schindler, Achim. Photographic camera light controlling apparatus. 4,334,748, Cl. 354-234.000.

Stadler, Peter: *See—*
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.

Staedtler, J. S.: *See—*
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Stafford, Richard W.: *See—*
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Staiger, William C.: *See—*
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Stained Glass Overlay, Inc.: *See—*
Butler, Donald, 4,335,170, Cl. 428-38.000.
Stammreich, John: *See—*
Hedgepeth, John M.; Samuels, Ronald L.; and Stammreich, John, 4,334,391, Cl. 52-108.000.
Stanadyne, Inc.: *See—*
Baxter, Leonard N., 4,334,831, Cl. 417-214.000.
Standard Oil Company: *See—*
Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., 4,335,056, Cl. 260-465.300.
Wu, Hsin-Chih, 4,334,965, Cl. 203-25.000.
Stanley Electric Co., Ltd.: *See—*
Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, 4,334,725, Cl. 316-19.000.
Stanley, Robert C., to FMC Corporation. Method for controlling the flow of fruit and fruit juice through a juice extraction facility. 4,335,145, Cl. 426-231.000.
Starkstrom Gummersbach GmbH: *See—*
Ludwig, Bernd; and Donner, Jurgen, 4,335,288, Cl. 200-307.000.
Staudt, John J., III: *See—*
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Stauffer Chemical Company: *See—*
Benjamin, Robert E.; and Edging, Thomas E., 4,335,154, Cl. 426-551.000.
Fearing, Ralph B., 4,335,178, Cl. 428-253.000.
Gaughan, Edmund J.; Mahoney, Martin D.; and Pallos, Ferenc M., 4,334,911, Cl. 71-93.000.
Walker, Francis H., 4,335,053, Cl. 260-465.00D.
Steeples, Ian P.: *See—*
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, 4,335,121, Cl. 424-241.000.
Stefko, Bela: *See—*
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Stegemeyer, Noel J.; and Naker, Vernon W., to Kearney & Trecker Corporation. Tool setting apparatus. 4,334,363, Cl. 33-185.00R.
Steglich, Wolfgang; Schramm, Georg; Anke, Timm; and Oberwinkler, Franz, to Hoechst Aktiengesellschaft. Photochemical process for the synthesis of strobilurin. 4,334,969, Cl. 204-158.00R.
Steigenberger, Richard: *See—*
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Steinmetz, Alfred: *See—*
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Stendel, Wilhelm: *See—*
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Stephan, Gerard, to Nadella. Universal joint yokes. 4,334,414, Cl. 464-134.000.
Stephen, David D., to Homco International Inc. Yield strength determination of ferromagnetic materials. 4,335,352, Cl. 324-228.000.
Sterling Drug Inc.: *See—*
Baker, James F.; and Chalecki, Bernard W., Jr., 4,335,131, Cl. 424-263.000.
Lesher, George Y.; and Singh, Baldev, 4,335,132, Cl. 424-263.000.
Michne, William F., 4,335,243, Cl. 546-97.000.
Sterling, Robert H. Golf putting training device. 4,334,684, Cl. 273-192.000.
Stetson, Earl W.: *See—*
Sakshaug, Eugene C.; and Stetson, Earl W., 4,335,417, Cl. 361-127.000.
Steward, Clarence: *See—*
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Stewart, Clare A., Jr.: *See—*
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Stewart, Kenneth W., Sr.: *See—*
Kebbon, Earl R.; McMillen, Bobby E.; Stewart, Kenneth W., Sr.; and Bloodworth, Dennis A., Jr., 4,335,323, Cl. 310-40.00R.
Stipp, Gordon K., to Procter & Gamble Company, The. Direct condensation of food volatiles onto a food substrate at cryogenic temperatures. 4,335,149, Cl. 426-386.000.
Stock, Hugh J., to Pacer Technology and Resources, Inc. Child proof dispenser. 4,334,638, Cl. 222-153.000.
Stog, Wilhelm, to WSW Planungs-GmbH. Exhaust hood for unloading assembly of coke-oven battery. 4,334,963, Cl. 202-263.000.
Stokes, Leonard S., to Uniroyal, Inc. Tire insert. 4,334,565, Cl. 152-158.000.
Stoudt, Thomas H.; and Nollstadt, Karl H., to Merck & Co., Inc. Oral hygiene enzymes and method for preparation. 4,335,101, Cl. 424-50.000.
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., to Xerox Corporation. Injection lasers with lateral spatial thickness variations (LSTV) in the active layer. 4,335,461, Cl. 372-45.000.
Streit, Klaus, to Robert Bosch GmbH. Temperature independent voltage supply. 4,335,346, Cl. 323-313.000.
Strobel, Richard A.: *See—*
Lyons, Michael D.; and Strobel, Richard A., 4,335,321, Cl. 307-252.00B.
Stroganova, Larisa A.: *See—*
Efimov, Vladimir M.; Naumova, Tatyana N.; Bykova, Irina G.; and Stroganova, Larisa A., 4,335,088, Cl. 423-420.000.
Strommer, Deon L.: *See—*
Blake, Jon R.; Knutson, Richard K.; and Strommer, Deon L., 4,335,155, Cl. 426-565.000.
Stuckmann, Dieter, to Gewerkschaft Eisenhutte Westfalia. Tunnel drive shield. 4,334,800, Cl. 405-145.000.
Stuerzer, Anton: *See—*
Zoeke, Siegfried; and Stuerzer, Anton, 4,334,955, Cl. 159-44.000.
Stumpp & Kurz GmbH & Co.: *See—*
Oettl, Reinhold, 4,334,813, Cl. 411-68.000.
Stutz, Emil, to Bracker AG. Apparatus for lubricating a ring traveller of a ring spinning or ring twisting frame. 4,334,402, Cl. 57-120.000.
Suc, Karel: *See—*
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Sugano, Kazuhiko: *See—*
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Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,334,442, Cl. 74-869.000.
Sugimura, Mitsuru: *See—*
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Sugiura, Yoji: *See—*
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Sugiyama, Takashi; Ogawa, Masaya; and Murasaki, Hiroshi, to Minolta Camera Kabushiki Kaisha. Blade-type cleaning device for electrophotograhic copying machine. 4,334,766, Cl. 355-15.000.
Sugiyama, Toshiyuki: *See—*
Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, 4,334,433, Cl. 73-629.000.
Sulmont, Benoit; and Hudault, Gerard, to Aluminium Pechiney. Process for packing electrolysis cells for the production of aluminum. 4,335,064, Cl. 264-30.000.
Sulzer Brothers Limited: *See—*
Grether, Paul, 4,334,398, Cl. 52-789.000.
Sumerau, Russell, to Singer Company, The. Belt sander. 4,334,390, Cl. 51-170.0EB.
Sumida, Seizo: *See—*
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Sumitomo Chemical Company, Limited: *See—*
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Maruyama, Kunio; and Okazaki, Akira, 4,335,089, Cl. 423-447.400.
Minai, Masayoshi, 4,335,263, Cl. 568-437.000.
Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, 4,334,912, Cl. 71-94.000.
Sumitomo Electric Industries, Ltd.: *See—*
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Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, 4,334,733, Cl. 350-96.330.
Sumrall, Harold E.: *See—*
Martin, William E.; and Sumrall, Harold E., 4,334,447, Cl. 83-111.000.
Sunbeam Plastics Corporation: *See—*
Gach, Peter P., 4,334,639, Cl. 222-153.000.
Sunmark, Inc.: *See—*
Barnes, J. Ray; Holdegraver, Robert E.; and Meibaum, Raymond K., 4,334,934, Cl. 127-9.000.
Supreme Casting & Tooling: *See—*
Haubert, Thomas R., 4,334,852, Cl. 425-525.000.
Suzaka, Yukinori, to Showa Denko Kabushiki Kaisha. Mixing device. 4,334,783, Cl. 366-69.000.
Suzukamo, Goufu: *See—*
Hamada, Kazuhiko; Suzukamo, Goufu; and Fujisawa, Koichi, 4,335,049, Cl. 549-483.000.
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Suzuki, Yoshiro, to Olympus Optical Company Limited. Electrophotographic apparatus of retentive type. 4,334,772, Cl. 355-3.0DD.
Sweeney, Charles T. Apparatus for generation of chlorine/chlorine dioxide mixtures. 4,334,968, Cl. 204-96.000.
Sweitzer, Bruce. Heat exchanger unit. 4,334,517, Cl. 126-121.000.
Swerlick, Isadore: *See—*
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Swiss Aluminium Ltd.: *See—*
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Sybron Corporation: *See—*
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Szasz, Kalman: *See—*
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Sze, Daniel T.: *See—*
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Tabuchi, Kenji: *See—*
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Tadiran Israel Electronics Industries Ltd.: *See—*
Peled, Emanuel, 4,335,191, Cl. 429-94.000.

Taiho Kogyo Co., Ltd.: *See—*
Futamura, Kenichiro; and Fukuoka, Tatsuhiko, 4,334,926, Cl. 75-230.000.

Taiyo Sengu Co., Ltd.: *See—*
Kawabe, Motoyuki, 4,334,670, Cl. 254-346.000.

Taiyo Shokai Co., Ltd.: *See—*
Onishi, Masami, 4,334,399, Cl. 53-69.000.

Takabayashi, Toshiaki. Method for improving combustibility of liquid fuel. 4,334,889, Cl. 44-50.000.

Takada, Juichiro. Coupling for a vehicle seat belt. 4,334,701, Cl. 280-804.000.

Takahashi, Junichi, to Hitachi, Ltd. Skid control method. 4,335,431, Cl. 364-426.000.

Takahashi, Junya: *See—*
Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, 4,334,912, Cl. 71-94.000.

Takahashi, Michiko: *See—*
Shirato, Yoshiaki; Takatori, Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, to Japan Steel Works, Ltd. Method and apparatus for measuring thickness of clad steel. 4,334,433, Cl. 73-629.000.

Takasawa, Seigo: *See—*
Hashimoto, Yukio; Takasawa, Seigo; Hirata, Tadashi; Matsukuma, Ikuo; and Yoshiie, Shigeo, 4,335,211, Cl. 435-119.000.

Takashi, Yano: *See—*
Mitsuo, Tanaka; Kazuaki, Tagawa; and Takashi, Yano, 4,335,420, Cl. 361-230.000.

Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, to Kowa Co., Ltd. Novel nitrosourea derivatives and process for their production. 4,335,247, Cl. 548-140.000.

Takatori, Yasushi: *See—*
Shirato, Yoshiaki; Takatori. Yasushi; Hara, Toshitami; Nishimura, Yukuo; and Takahashi, Michiko, 4,335,389, Cl. 346-140.00R.

Takatsu, Syozo: *See—*
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Takeda, Susumu: *See—*
Takahashi, Shizuo; Matsumi, Satoru; Sugiyama, Toshiyuki; and Takeda, Susumu, 4,334,433, Cl. 73-629.000.

Takemoto, Ichiki: *See—*
Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, 4,334,912, Cl. 71-94.000.

Takemoto, Iwao: *See—*
Ohba, Shinya; Kubo, Masaharu; Takemoto, Iwao; Hanamura, Shoji; and Aoki, Masakazu, 4,335,406, Cl. 358-213.000.

Takenoya, Hideaki: *See—*
Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, 4,334,486, Cl. 112-158.00E.

Takeshima, Mikio; Kawase, Masaaki; Yamanishi, Toru; and Yoshida, Masaaki, to Nippon Telegraph & Telephone Public Corp.; and Sumitomo Electric Industries, Ltd., part interest to each. Coated glass fibers for optical transmission. 4,334,733, Cl. 350-96.330.

Takeuchi, Shigeru, to Kurimoto Iron Works, Ltd. Glass fiber-reinforced cement plates. 4,335,177, Cl. 428-247.000.

Takeuchi, Tomio: *See—*
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, 4,335,250, Cl. 560-67.000.

Takinishi, Kiyotoshi; and Nakamura, Masato, to Rion Co., Ltd. Artificial palate device for electropalatograph. 4,334,542, Cl. 128-642.000.

TAM Ceramics, Inc.: *See—*
Hodgkins, Charles E.; and Giermek, Mark J., 4,335,216, Cl. 501-32.000.

Tamminen, Teijo T. T., to Henberg Oy. Machine for producing rolls of bakery products. 4,334,845, Cl. 425-104.000.

Tamura, Eiji, to Sony Corporation. Method and apparatus for digitally adjusting white balance. 4,335,397, Cl. 358-29.000.

Tanabe, Yasuhiro: *See—*
Doi, Yoshinao; Kaneko, Shigeo; Hanamura, Takeo; Fujii, Osamu; Yoshitake, Katsumi; Hirata, Tetsuhiko; and Tanabe, Yasuhiro, 4,335,193, Cl. 429-251.000.

Tanaka, Akira, to Tokyo Metropolitan Government. Replica film of specimen for electron microscopy apparatus. 4,334,844, Cl. 425-2.000.

Tanaka, Junzo; Nakano, Chikao; and Kurita, Hitoshi, to Matsushita Electric Industrial Co., Ltd. High frequency oven with drawer type door. 4,335,292, Cl. 219-10.55F.

Tanaka, Kouichi; and Mori, Masaharu, to Nippon Electric Co., Ltd.; and Clarion Co., Ltd. Pulse generator for producing a pulse having a pulse width dependent on an input signal. 4,335,322, Cl. 307-542.000.

Tani, Haruhisa: *See—*
Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, 4,335,070, Cl. 264-555.000.

Tani, Katsuhiko; and Sakamoto, Tamio. Method of manufacturing table salt. 4,334,886, Cl. 23-303.000.

Taniguchi, Harutaka; Hara, Kenichi; and Shiraishi, Hideo, to Fuji Electric Co., Ltd. Oxygen sensor. 4,335,369, Cl. 338-34.000.

Taniguchi, Tokuyuki: *See—*
Ota, Masanori; Mori, Toshiki; and Taniguchi, Tokuyuki, 4,334,610, Cl. 206-205.000.

Tanner, Douglas; and Spector, George. Can crusher. 4,334,469, Cl. 100-110.000.

Tata, Robert. Track trainer. 4,334,677, Cl. 272-100.000.

Taylor, Edward S., to Bird Machine Company, Inc. Centrifuges. 4,334,647, Cl. 233-7.000.

TDK Electronics Co., Ltd.: *See—*
Ishino, Ken; Miura, Taro; and Hashimoto, Yasuo, 4,335,291, Cl. 219-10.55E.

Technicare Corporation: *See—*
DeVries, Richard C.; and Hill, Edwin R., 4,335,307, Cl. 250-322.000.
Hunt, Willard F.; and McCarthy, Robert H., 4,335,427, Cl. 364-414.000.

Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov, Jury M. Method for preparing 1,2-dichloroethane. 4,334,967, Cl. 204-81.000.

Teich, Wesley W., to Raytheon Company. Microwave oven blower radiator. 4,335,290, Cl. 219-10.55F.

Tektronix, Inc.: *See—*
Crosby, Philip S., 4,335,356, Cl. 330-254.000.
Haven, Duane A., 4,335,328, Cl. 313-395.000.

Telettra-Telefonica Electronica e Radio S.p.A.: *See—*
Pome', Enzo, 4,335,365, Cl. 333-229.000.

Tellier, Pierre: *See—*
Delavarenne, Serge; and Tellier, Pierre, 4,335,050, Cl. 260-369.000.

Tempel-Callison Company: *See—*
Davis, Thomas R.; and Bostian, Charles D., 4,334,662, Cl. 248-237.000.

Temple University: *See—*
Salomon, Robert E., 4,335,093, Cl. 423-644.000.

Tennant Company: *See—*
Brown, Neil F.; Krier, Keith N.; and Nirgude, Ranjan K., 4,334,335, Cl. 15-319.000.

Terada, Osamu; and Aisaka, Kazuo, to Kyowa Hakko Kogyo Co., Ltd. Process for the preparation of galactose oxidase. 4,335,213, Cl. 435-190.000.

Terrill, David B.: *See—*
Callahan, James L.; Shaw, Wilfrid G.; and Terrill, David B., 4,335,056, Cl. 260-465.300.

Teruyama, Hideo, to Kayaba Kogyo Kabushiki Kaisha. Gear pump or motor with serrated grooves on inner wall for break-in operation. 4,334,840, Cl. 418-1.000.

Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, to Stanley Electric Co., Ltd. Method for making a fluorescent lamp. 4,334,725, Cl. 316-19.000.

Tetra Pak International AB: *See—*
Andersson, Par M., 4,334,437, Cl. 74-53.000.

Tewes, Udo: *See—*
Roeschlein, Rolf; Tewes, Udo; and Schmeykal, Rudolf, 4,334,732, Cl. 339-176.0MP.

Texas Instruments Incorporated: *See—*
Brantingham, George L., 4,335,275, Cl. 179-1.0SM.
Morris, Henry B., 4,335,391, Cl. 357-23.000.
Puri, Ajay K., 4,335,277, Cl. 179-1.0SM.

Textron Inc.: *See—*
Males, Robert E.; and Colechia, Edward A., 4,334,613, Cl. 206-340.000.

Tezuka, Toru; and Matsuda, Akira, to Caterpillar Mitsubishi Ltd. Vehicle engine noise reducing assembly. 4,334,588, Cl. 180-68.00P.

Tharp, Nelson B.; and Hartley, Harry F., to Westinghouse Electric Corp. Method and system for radiating RF power from a trailing wire antenna. 4,335,469, Cl. 455-125.000.

Thermo Electron Corporation: *See—*
Davis, Robert D.; and Blizzard, Roy L., 4,335,080, Cl. 422-244.000.

Theurer, Josef, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Method and apparatus for obtaining a controlled degree of ballast compaction in the tamping and leveling of a truck. 4,334,479, Cl. 104-12.000.

Thieman, Graham F.: *See—*
Arthur, James C.; and Thieman, Graham F., 4,334,703, Cl. 285-222.000.

Thiemer, Klaus: *See—*
Kleemann, Axel; Jakovlev, Vladimir; Thiemer, Klaus; and Engel, Jurgen, 4,335,126, Cl. 424-250.000.

Thies, Edward J.: *See—*
Michlin, Norman; and Thies, Edward J., 4,334,756, Cl. 354-300.000.

Thijssen, Henricus A. C.: *See—*
van Overbruggen, Gerardus J. J.; van Beaumont, Richard A.; and Thijssen, Henricus A. C., 4,334,640, Cl. 222-207.000.

Thill, Fernand: *See—*
Metz, Paul; Schleimer, Francois; Lorang, Lucien; Goedert, Ferdinand; Henrion, Romain; and Thill, Fernand, 4,334,922, Cl. 75-60.000.

Tholome, Roger, to Air Industrie, Societe Anonyme. Reciprocating drive system for a body such as a carriage supporting electrostatic means for spraying a pulverized material, the system including an asynchronous squirrel cage motor. 4,335,342, Cl. 318-627.000.

Thomas, Donald R., to International Business Machines Corporation. Non-destructive read out field effect transistor memory cell system. 4,335,450, Cl. 365-182.000.

Thomas, Lowell S., to Dow Chemical Company, The. Polycarbonate containing a metal perfluoroborate and an organosilane as ignition depressants. 4,335,038, Cl. 524-188.000.

Thomassin, Pierre C.: *See—*
Breton, Jean-Paul R. H.; Thomassin, Pierre C.; and Villeneuve, Bernard E., 4,334,429, Cl. 73-151.000.

Thomis, Wendl: *See—*
Doyle, Holly T.; Doyle, Robert O.; and Thomis, Wendl, 4,334,679, Cl. 273-1.00E.

Thompson, Arnold M., to Gold Lode, Inc. Portable ski wax applicator. 4,334,793, Cl. 401-1.000.

Thompson, Edward D.; Carter, Stephen B.; and Manring, Gary L., to Procter & Gamble Company, The. Anti-acne composition. 4,335,115, Cl. 424-181.000.

Thompson, Kenneth P., to Champion International Corporation. Method for forming a plastic fluid container with an integral handle. 4,334,942, Cl. 156-217.000.

Thompson, Timothy W. Stroboscopic posing aid. 4,334,754, Cl. 354-290.000.

Thomson-CSF: *See—*
Croset, Michel; and Velasco, Gonzalo, 4,334,510, Cl. 123-440.000.
Hareng, Michel; and Le Berre, Serge, 4,334,734, Cl. 350-331.00R.
Hareng, Michel; and Le Berre, Serge, 4,334,735, Cl. 350-351.000.
Salvat, Francois; Bouko, Jean; and Le Foll, Jean, 4,335,387, Cl. 343-756.000.

Thomson Industries, Inc.: *See—*
Magee, Robert C.; and Rogers, Alfred M., III, 4,334,716, Cl. 308-6.00C.

Thornton, David C., to American Sterilizer Company. Pressure-vacuum purge cycle. 4,335,071, Cl. 422-26.000.

Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, to Westinghouse Electric Corp. Method and apparatus for expressing relative brightness of artificial illumination as perceived by the average observer. 4,334,782, Cl. 356-406.000.

Thorpe, Walter H. Tire chain. 4,334,568, Cl. 152-218.000.

Thummel, Rudolph C.: *See—*
Fischer, Hanspeter; Thummel, Rudolph C.; and Wehrli, Rudolf, 4,335,118, Cl. 424-226.000.

Thurlow, Keith: *See—*
Sixsmith, Herbert; Thurlow, Keith; Soar, Geoffrey K.; and Burton, James W., 4,334,821, Cl. 415-53.00T.

Timewell, Richard R., to R. T. Tool Co. Ltd. Z Style speed wrench. 4,334,445, Cl. 81-177.0PP.

Timex Corporation: *See—*
Sethofer, Nicholas L., 4,335,011, Cl. 252-299.100.
Sorkin, Howard, 4,335,012, Cl. 252-299.610.

Ting, Vincent W.; Woo, James T. K.; and Borovicka, David A., Sr., to SCM Corporation. Cathodic electrocoating compositions containing base-functional graft polymers having epoxy resin backbones, and substrates coated therewith. 4,335,028, Cl. 524-504.000.

Tingskog, Karl A. L., to AB Siwertell. Final unloading apparatus. 4,334,818, Cl. 414-139.000.

Tioga Air Heaters, Inc.: *See—*
Muckelrath, Ernest R., 4,334,862, Cl. 432-128.000.

Tiraboschi, Pietro: *See—*
Lagana', Vincenzo; Pasero, Riccardo; and Tiraboschi, Pietro, 4,334,954, Cl. 159-18.000.

Titcomb, Steven E.: *See—*
Hill, Loran R.; and Titcomb, Steven E., 4,334,544, Cl. 128-664.000.

Tkac, Alexander; and Cvengros, Jan, to Slovenska vysoka skola technicka. Multistage molecular evaporator with wiped off film and continuous redistillation. 4,334,952, Cl. 159-11.00R.

Tkatschenko, Gunter T.; and Franke, Gunther, to Perkin-Elmer Corporation, The. Sealing apparatus. 4,334,435, Cl. 73-864.860.

Toa Nenryo Kogyo Kabushiki Kaisha: *See—*
Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, 4,335,015, Cl. 252-429.00B.

Todd, Geoffrey C., to Dowty Fuel Systems Limited. Fuel supply system. 4,334,406, Cl. 60-223.000.

Toho Ganryo Kogyo Co., Ltd.: *See—*
Abe, Nobuyoshi; Takatsu, Syozo; Kanemaru, Kiyoshi; and Yokoyama, Minoru, 4,334,933, Cl. 106-305.000.

Tokarzewski, Richard J.: *See—*
Kiwala, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,335,008, Cl. 252-174.110.

Tokita, Hideki: *See—*
Kishikawa, Kanichi; Watanabe, Kazuo; Tokita, Hideki; Nishino, Taneharu; and Nagasoe, Seiichi, 4,334,419, Cl. 72-225.000.

Tokyo Gas Kabushiki Kaisha: *See—*
Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, 4,334,943, Cl. 156-287.000.

Tokyo Magnetic Printing Co., Ltd.: *See—*
Hosaka, Hiroshi, 4,335,183, Cl. 428-336.000.

Tokyo Metropolitan Government: *See—*
Tanaka, Akira, 4,334,844, Cl. 425-2.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See—*
Aoyama, Masaharu; Ohshima, Jiro; and Yonezawa, Toshio, 4,334,349, Cl. 29-579.000.
Horino, Shigeo; and Hashimoto, Yoshiro, 4,334,619, Cl. 209-551.000.
Mitsui, Hisayasu; Kumazawa, Ryozi; Inoue, Yoshiyuki; Suzuki, Shuichi; Ito, Takeo; Sanada, Sinichi; and Hayase, Shuzi, 4,335,367, Cl. 336-205.000.
Ozeki, Takeshi, 4,334,781, Cl. 356-368.000.
Saito, Masao; Aoya, Hiroshi; and Yoshida, Naruhito, 4,334,761, Cl. 355-3.00R.

Tolbert, William R.; Hitt, Mary M.; Feder, Joseph; and Kimes, Richard C., to Monsanto Company. Method of growing anchorage-dependent cells. 4,335,215, Cl. 435-241.000.

Tomilov, Andrei P.: *See—*
Tedoradze, Gurami A.; Paprotskaya, Valentina A.; Tomilov, Andrei P.; Ponomarenko, Evegina A.; and Sokolov, Jury M., 4,334,967, Cl. 204-81.000.

Tomura, Teruichi: *See—*
Watanabe, Yoshio; Yamane, Mikiya; and Tomura, Teruichi, 4,335,331, Cl. 315-334.000.

Torbett, Christopher J.: *See—*
Rice, Warren A.; Vinton, Clarence S.; Franklin, Charles H.; and Torbett, Christopher J., 4,334,350, Cl. 29-611.000.

Toshiaki, Kume; Takenoya, Hideaki; Kakinuma, Toshihide; Makabe, Hachiro; and Watanabe, Kazuo, to Janome Sewing Machine Co., Ltd. Electronic sewing machine. 4,334,486, Cl. 112-158.00E.

Toshiba Silicone Co., Ltd.: *See—*
Hatanaka, Masayuki; and Kurita, Atsushi, 4,335,035, Cl. 523-212.000.

Toth, Benjaminne: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Toth, Ferenc: *See—*
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Toth, Istvan J.: *See—*
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.

Tovagliaro, Costantino, to Magnaghi Oleodinamica S.p.A. Brake wear compensating device. 4,334,597, Cl. 188-71.800.

Toyo Kogyo Co., Ltd.: *See—*
Hara, Takanori; and Shimamura, Yoshihiro, 4,335,340, Cl. 318-282.000.
Otsuka, Kazutoshi, 4,334,515, Cl. 123-568.000.

Toyono, Tsutomu: *See—*
Honda, Haruhisa; Murata, Shinji; Toyono, Tsutomu; Sone, Yoshiaki; and Morikawa, Teruo, 4,334,763, Cl. 355-8.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
Kawai, Hisasi; Nohira, Hidetaka; and Yoshimura, Kunimasa, 4,334,422, Cl. 73-35.000.
Ochiai, Takeshi; Ohta, Jun; Izawa, Minoru; and Haneda, Takashi, 4,335,284, Cl. 200-61.270.

Transaction Control Industries: *See—*
Converse, Merle E., 4,335,345, Cl. 323-278.000.

Traut, G. Robert, to Rogers Corporation. Microwave circuit boards. 4,335,180, Cl. 428-303.000.

Trenary, Dale T.; Frederick, Allen H.; and Whelton, Robert M., to Data General Corporation. Retro-etch process for forming gate electrodes of MOS integrated circuits. 4,334,348, Cl. 29-571.000.

Trend Products Group: *See—*
Klamer, Reuben B.; and Mortonson, Robert J., 4,334,690, Cl. 280-11.210.

Trevino, Robert J.: *See—*
Alvarez, Patricio D.; and Trevino, Robert J., 4,334,666, Cl. 251-167.000.

Triumph Werke Nurnberg A.G.: *See—*
Link, Manfred; Puch, Diethelm; Zahner, Peter; and Suc, Karel, 4,334,790, Cl. 400-144.200.

Truax, Bruce E.: *See—*
Breecher, Jerry D.; and Truax, Bruce E., 4,334,775, Cl. 356-152.000.

Trumpf, Jakob; and Keller, Hansueli, to Werkzeugmaschinenfabrik Oerlikon-Buhrle AG. Spindle extension, especially for drilling and milling machines. 4,334,811, Cl. 409-233.000.

TRW Inc.: *See—*
Derkacs, Thomas; Fetheroff, Charles W.; Matay, Istvan M.; and Toth, Istvan J., 4,334,495, Cl. 118-669.000.
Luft, Werner; Kennedy, Robert E.; and Mesch, Hans G., 4,334,354, Cl. 29-840.000.

Tsuboi, Makoto: *See—*
Kobayashi, Tetsu; Kanazawa, Takato; and Tsuboi, Makoto, 4,335,293, Cl. 219-10.55B.

Tsuboi, Takashi: *See—*
Okamatsu, Shigetoshi; Tsuboi, Takashi; Ibamoto, Masahiko; and Narita, Hiroshi, 4,335,337, Cl. 318-52.000.

Tsuchikawa, Shunzo; and Hayashi, Masaharu, to Aisin Seiki Kabushiki Kaisha. Flexible fan device. 4,334,824, Cl. 416-132.00R.

Tsuchiya, Shuyou: *See—*
Satoh, Hisashi; Akabane, Yukihiro; Shiraiwa, Yukio; and Tsuchiya, Shuyou, 4,334,721, Cl. 308-193.000.

Tsuji, Yoshikatsu, to Fujizoki Pharmaceutical Co., Ltd. Absorbent for use in passive agglutination test. 4,335,096, Cl. 424-12.000.

Tsunekawa, Tokuichi: *See—*
Sakane, Toshio; and Tsunekawa, Tokuichi, 4,335,405, Cl. 358-213.000.
Tsuyumu, Shinji; and Ota, Keiichi, to Otsuka Pharmaceutical Co., Ltd. α-D-Galacturonide derivatives. 4,335,236, Cl. 536-18.200.
Tullock, Charles W.: *See—*
Collette, John W.; and Tullock, Charles W., 4,335,225, Cl. 525-240.000.
Turano, Peter S. Container for soaking and preserving paint roller covers. 4,334,416, Cl. 68-213.000.
Turchi, Enrico, to Fratelli Borletti S.p.A. Proximity fuses. 4,334,475, Cl. 102-206.000.
Turner, John J. P.: *See—*
Adelman, Robert L.; and Turner, John J. P., 4,335,185, Cl. 428-361.000.
Turner, Ralph E., Jr., to Anglo-American Clays Corporation. Selective rheological separation of clays. 4,334,985, Cl. 209-5.000.
Tusche, Reinhard: *See—*
Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, 4,334,929, Cl. 75-246.000.
Tuxford, Anthony M.: *See—*
Cunningham, James A.; and Tuxford, Anthony M., 4,335,162, Cl. 427-130.000.
Udvardi, Agnes: *See—*
David, Agoston; Horvath, Tibor; Kiss, Csaba; Nagy, Gabor; Simon, Kalman; Simonidesz nee Vermes, Ilona; Udvardi, Agnes; and Virag, Sandor, 4,335,097, Cl. 424-14.000.
Udy, Lex L.: *See—*
Day, John T.; and Udy, Lex L., 4,334,476, Cl. 102-275.700.
Ueda, Yoichiro, to Daicel Chemical Industries, Ltd. Process for purifying macrocyclic ketones. 4,335,261, Cl. 568-366.000.
Uemura, Yahiro: *See—*
Funakoshi, Satoshi; Uriyu, Katuhiro; Uemura, Yahiro; Nakane, Katashi; and Yamane, Akio, 4,335,099, Cl. 424-32.000.
Ueno, Haruyuki: *See—*
Hatta, Tokuaki; Ueno, Haruyuki; Katsura, Yuji; Fukuda, Kazushige; and Kubota, Hiroshi, 4,335,217, Cl. 501-92.000.
Ueno, Hiroshi: *See—*
Imai, Masafumi; Ueno, Hiroshi; and Inaba, Naomi, 4,335,015, Cl. 252-429.00B.
Ueno, Shyichi: *See—*
Akiyama, Yoshinori; and Ueno, Shyichi, 4,334,709, Cl. 297-284.000.
Uetake, Shigeru: *See—*
Ohmuro, Yuzo; Kamogawa, Nin-ichi; Uetake, Shigeru; and Yamazaki, Yoshio, 4,335,196, Cl. 430-122.000.
Ujiie, Takashi: *See—*
Nakashima, Syozi; Ozawa, Tosiyuki; Naganuma, Takeshi; Ujiie, Takashi; Hayashi, Satoshi; and Ochiai, Yoshihito, 4,335,102, Cl. 424-52.000.
Ullrich, Georg J.: *See—*
Leist, Helmut; and Ullrich, Georg J., 4,334,541, Cl. 128-632.000.
Umekawa, Osamu: *See—*
Katayama, Sakae; and Umekawa, Osamu, 4,334,957, Cl. 162-161.000.
Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Ishizuka, Masaaki; Morishima, Hajime; Yamamoto, Takuzo; Yoshizawa, Junji; Hosoi, Masaaki; and Matsumoto, Ikuo, to Banyu Pharmaceutical Co., Ltd. Compound with immunopotentiating activity and production and uses thereof. 4,335,250, Cl. 560-67.000.
Union Carbide Corporation: *See—*
Koerwer, John F., 4,334,913, Cl. 71-98.000.
McCullough, Robert W.; and Hewett, Thomas A., 4,334,524, Cl. 126-449.000.
Union Oil Company of California: *See—*
Young, Donald C., 4,334,906, Cl. 71-33.000.
Uniroyal, Inc.: *See—*
Bandlish, Baldev K.; Loveless, Frederick C.; and Nudenberg, Walter, 4,335,006, Cl. 252-49.700.
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DeGuiseppi, David T., 4,335,218, Cl. 521-99.000.
Upton, Robert G., to Smith International, Inc. Insert retention and cooling apparatus for drag bits. 4,334,585, Cl. 175-329.000.
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Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, to Nissan Motor Company, Limited. Catalytic reactor for automotive exhaust line. 4,335,078, Cl. 422-179.000.
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VanBenthuysen, John D., to CTS Corporation. Method of making a variable resistance control. 4,334,352, Cl. 29-620.000.
VanCleave, Jon S., to United Chemical Corporation. Anhydrous multipurpose moisturizing composition. 4,335,104, Cl. 424-59.000.
Van Coillie, Andre S. J., to Valico P.v.b.a. Head piece for a tank for liquefied gas. 4,334,561, Cl. 141-392.000.
Vandenberk, Jan; Kennis, Ludo; Van der Aa, Marcel; and Van Heertum, Albert, to Janssen Pharmaceutica, N.V. Piperidinylalkyl quinazoline compounds, composition and method of use. 4,335,127, Cl. 424-251.000.

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Vander Mey, John E. Apparatus for the sulfonation or sulfation of organic liquids. 4,335,079, Cl. 422-194.000.
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Van Ess, John C., to Ross, Walter A. Elastic light mounting tapes. 4,335,422, Cl. 362-388.000.
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Van Loveren, Augustinus G.: *See—*
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VanNess, Bradford O., to Engineered Systems, Inc. Electronic control system. 4,335,448, Cl. 364-900.000.
van Overbruggen, Garardus J. J.; van Beaumont, Richard A.; and Thijssen, Henricus A. C., to Douwe Egberts Koninklijke Tabaksfabriek-Koffiebranderijen-Theehandel B.V. Exchangeable concentrate container for beverage dispensing machines. 4,334,640, Cl. 222-207.000.
Vansickle, Julius D.; and Vansickle, Major J. Back loader for big hay bales. 4,334,817, Cl. 414-24.500.
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Victor, Rene, to Etablissements Letang & Remy. Method for manufacturing vehicle-wheels by a magneto-forming process and wheels obtained by this method. 4,334,417, Cl. 72-56.000.
Vidal, Frederick D.; and Jayaraman, Anantharman, to Pennwalt Corporation. Methods of preventing grain sprouting after harvest through the application of sulfur dioxide, nitrogen and ammonia gases. 4,335,148, Cl. 426-319.000.
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von Bonin, Wulf; Lahrs, Jurgen; and Born, Eberhard, to Bayer Aktiengesellschaft. Modular block for osmotic methods of separation. 4,334,992, Cl. 210-241.000.
von Colson, Godehard, to Palitex Project-Company GmbH. Stator section for a spindle, more especially a two-for-one spinning or twisting spindle. 4,334,405, Cl. 57-300.000.
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, to Bayer Aktiengesellschaft. 1-N-Alkylsisomicin derivatives, their production and their medicinal use. 4,335,114, Cl. 424-180.000.
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Wagner, Kuno; Niggemann, Johannes; Findeisen, Kurt; and Scheinpflug, Hans, to Bayer Aktiengesellschaft. Agrochemical agents and their use. 4,334,905, Cl. 71-27.000.
Wagner, Richard S., to Bell Telephone Laboratories, Incorporated. Fabrication technique for the production of devices which depend on magnetic bubbles. 4,334,951, Cl. 156-643.000.
Wahlin, Bo. O. Coupling element. 4,334,797, Cl. 403-252.000.
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Kobayashi, Hiroto, 4,335,062, Cl. 261-44.00G.
Walker, Francis H., to Stauffer Chemical Company. N-cyanobenzyl haloacetamides. 4,335,053, Cl. 260-465.00D.
Walkuski, Joseph. Garment hood. 4,334,325, Cl. 2-202.000.
Wall, Rendal, to Norlin Industries, Inc. Guitar bridge. 4,334,454, Cl. 84-299.000.
Wallace, Bernard E., deceased (Kathryn Wallace and Philadelphia National Bank, executors). Gantries. 4,334,480, Cl. 104-126.000.
Warner, Noel A., to 501 National Research Development Corp. Method of recovering non-ferrous metals from their sulphide ores. 4,334,918, Cl. 75-21.000.
Warren, Elbert K.; and Porter, William D., to Akzona, Incorporated. Apparatus and method for controlling the tension on a yarn bundle withdrawn from a mass of compacted yarn. 4,334,654, Cl. 242-147.00R.
Warren, Henry R., to RCA Corporation. Crosstalk filtering arrangement with variable frequency filtering to remove effects of FM carrier. 4,335,394, Cl. 358-8.000.
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Watson, William H.; and Young, Chauncey, to Container Corporation of America. Envelope type carton. 4,334,611, Cl. 206-303.000.

Watts, Ian S.; and Marsden, Peter H., to Burroughs Wellcome Co. Pharmaceutical formulations containing prostacyclin compounds. 4,335,139, Cl. 424-285.000.

Waugh, John S.; and Weber, Richard G., to Machlett Laboratories, Incorporated, The. X-Ray tube target having pyrolytic amorphous carbon coating. 4,335,327, Cl. 313-330.000.

Webb, James L., to W. R. Grace & Co. Thermoplastic film laminates. 4,335,175, Cl. 428-213.000.

Weber, Girard M. Holder. 4,334,621, Cl. 211-60.00M.

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Weber, William G., to United Air Specialists, Inc. Automatic reset current cut-off for an electrostatic precipitator power supply. 4,335,414, Cl. 361-100.000.

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Werner, Werner R.; and Werner, Bruno R. Submersible pump stabilizer. 4,334,834, Cl. 417-360.000.

Wessendorf, Roberta H.: *See—*
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West, Norman, to Bestobell Mobrey Limited. Float operated electrical switch assembly. 4,335,285, Cl. 200-84.00C.

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Westervelt, Dean C.: *See—*
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Westin, Karl H. Electromagnet for moving iron objects. 4,334,708, Cl. 294-65.500.

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Dale, Steinar J., 4,335,268, Cl. 174-14.00R.
Engel, Joseph C.; Wafer, John A.; Mercier, Bernard J.; and Matsko, Joseph J., 4,335,413, Cl. 361-93.000.
Geiger, Walter R.; and Kessinger, Boyd A., 4,334,554, Cl. 138-44.000.
Hopkins, Melvyn D., 4,335,267, Cl. 174-14.00R.
Mendelsohn, Morris A.; and Navish, Francis W., 4,335,179, Cl. 428-273.000.
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Schreiner, Charles P., 4,334,715, Cl. 308-3.600.
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Thornton, William A., Jr.; Chen, Edward; Morton, Edward W.; and Rachko, Dorothy, 4,334,782, Cl. 356-406.000.
Wilson, John T.; Wafer, John A.; and Engel, Joseph C., 4,335,437, Cl. 364-483.000.

Westlake, Patrick C.; Fish, Keith; and Mallory, James D. Mine roof bolt. 4,334,803, Cl. 405-259.000.

Westphal, Paul, to Lemforder Metallwaren AG. Ball and socket joint. 4,334,795, Cl. 403-131.000.

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Whitehurst, Darrell D.: *See—*
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Whiteman, Robert N., Jr.: *See—*
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Wiener, Claire; and Haas, Gerhard J., to General Foods Corporation. Dried albedo clouding agent and process therefor. 4,335,143, Cl. 426-50.000.

Wiersdorff, Walter-Wielant; Geiss, Karl-Heinz; Weifenbach, Harald; Worstmann, Wolfgang; Lenke, Dieter; and Kretzschmar, Rolf, to BASF Aktiengesellschaft. Novel carbamates, their preparation, and pharmaceutical formulations containing these compounds. 4,335,138, Cl. 424-275.000.

Wieser, Joseph H. Concrete forming apparatus. 4,334,851, Cl. 425-412.000.

Wiezer, Hartmut; and Pfahler, Gerhard, to Hoechst Aktiengesellschaft. Triazine derivatives. 4,335,242, Cl. 544-198.000.

Wilcox, Charles E.; and Spector, George. Educational mathematics game. 4,334,869, Cl. 434-208.000.

Wildfeuer, Robert. Cooling system. 4,334,412, Cl. 62-333.000.

Wildman, John R.: *See—*
Rogers, Gregory B.; Wildman, John R.; and Breslow, Jeffrey D., 4,334,384, Cl. 46-39.000.

Wildonger, Kenneth J.: *See—*
Christensen, Burton G.; Leanza, William J.; and Wildonger, Kenneth J., 4,335,043, Cl. 260-245.20T.

Wilke, Werner; Gref, Hans; and Frenken, Hans, to AGFA-Gevaert AG. Process for the continuous preparation of photographic emulsions. 4,334,884, Cl. 23-293.00R.

Wilkins, Judd R.; and Grana, David C., to United States of America, National Aeronautics and Space Administration. Apparatus and process for microbial detection and enumeration. 4,335,206, Cl. 435-34.000.

Wilkinson, Robert E.: *See—*
Epel, Joseph N.; Wilkinson, Robert E.; Guha, Probir K.; and Crandon, Albert S., Jr., 4,334,563, Cl. 145-2.00R.

Williams, David M.: *See—*
Chase, Richard A.; Simpson, Danny E.; and Williams, David M., 4,334,382, Cl. 46-1.00R.

Williams, Richard R.: *See—*
Pardue, Robert M.; and Williams, Richard R., 4,334,778, Cl. 356-349.000.

Williamson, Christopher: *See—*
Phillipps, Gordon H.; Bain, Brian M.; Steeples, Ian P.; and Williamson, Christopher, 4,335,121, Cl. 424-241.000.

Williamson, Joanne M.: *See—*
Meister, Alton; and Williamson, Joanne M., 4,335,210, Cl. 435-113.000.

Willis, Donald H., to RCA Corporation. Television receiver high voltage protection circuit. 4,335,335, Cl. 315-411.000.

Wills, Jean M.: *See—*
Burcombe, Douglas A.; and Wills, Jean M., 4,334,386, Cl. 47-62.000.

Wilson, David A.; and Serany, Frank J., to Cutter Laboratories, Inc. Conduit device for rapid priming and flow of liquid. 4,334,535, Cl. 128-214.00D.

Wilson, James D. Nestable-stackable plastic receptacle. 4,334,616, Cl. 206-505.000.

Wilson, John C.; and Yacobucci, Paul D., to Eastman Kodak Company. Polymerizable acryloyloxyarylenesulfonamides. 4,335,254, Cl. 560-138.000.

Wilson, John T.; Wafer, John A.; and Engel, Joseph C., to Westinghouse Electric Corp. Circuit interrupter with energy management functions. 4,335,437, Cl. 364-483.000.

Wilson, Kenneth E.; and Kempf, August J., to Merck & Co., Inc. Fermentation process for (5R,6S,8S)-3-(2-aminoethylthio)-6-(1-hydroxyethyl)-7-oxo-1-azabicyclo[3.2.0]hept-2-ene-2-carboxylic acid. 4,335,212, Cl. 435-119.000.

Wilson, Thomas A.: *See—*
Neary, Michael P.; and Wilson, Thomas A., 4,335,160, Cl. 427-38.000.

Wilson, Thomas E., Jr. Shorthand paper. 4,334,702, Cl. 283-45.000.

Winders, Gordon R.; and MacKay, Fredric M., to Rheem Manufacturing Company. Unitary handle and display tag. 4,334,371, Cl. 40-2.00R.

Windings, Inc.: *See—*
Zajac, Ronald E., 4,334,614, Cl. 206-389.000.

Winslow, Amanda Kimberly: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.

Winslow, Francis Mae: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.
Winslow, Jack M., to Winslow, Amanda Kimberly; Winslow, Marjorie Ann; Winslow, Francis Mae; Winslow, Jennifer Jean; and Winslow, Marjorie Ellen. Percussion cap remover. 4,334,376, Cl. 42-90.000.
Winslow, Jennifer Jean: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.
Winslow, Marjorie Ann: *See—*
Winslow, Jack M., 4,334,376, Cl. 42-90.000.
Winslow, Marjorie Ellen: *See—*
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Winter, Richard L.: *See—*
Connolly, John R.; Gibson, David E.; Heimark, Edward L.; Quinn, Jerome B.; Speechley, Richard E.; and Winter, Richard L., 4,334,826, Cl. 416-185.000.
Winters, Jerald E.: *See—*
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Wirth, Carl R., to Wirth, Caroline G.; and Wessendorf, Roberta H., a part interest. Wirth's sterile, disposable surgical drape. 4,334,529, Cl. 128-132.00D.
Wirth, Caroline G.: *See—*
Wirth, Carl R., 4,334,529, Cl. 128-132.00D.
Wirz, Arno: *See—*
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Witco Chemical Corporation: *See—*
Barker, Graham; Safrin, Leopold; and Barabash, Martin J., 4,335,025, Cl. 252-550.000.
Dabi, Shmuel; Loewrigkeit, Peter; and Van Dyk, Kenneth A., 4,335,029, Cl. 524-589.000.
Witzel, Bruce E.: *See—*
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,335,141, Cl. 424-304.000.
Woerner, Frank P.: *See—*
Mahnke, Harald; Kreibiehl, Guenter; Weber, Heinz; and Woerner, Frank P., 4,334,971, Cl. 204-159.210.
Wojciehowski, James P.: *See—*
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Wolber, Dieter: *See—*
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Womako Maschinenkonstrucktionen GmbH: *See—*
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Wong, Jack Y. High gloss water-base coating composition. 4,335,163, Cl. 427-256.000.
Woo, James T. K.: *See—*
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Woo, Ji Y.: *See—*
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Worstmann, Wolfgang: *See—*
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Worth, Charles C. Light weight casting rod handle. 4,334,378, Cl. 43-22.000.
Wray, John: *See—*
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Wray, William R., to Polaroid Corporation. Receiving system having pre-selected directional response. 4,334,740, Cl. 352-11.000.
Wright, David Y. Multi-beam raster scan display monitor. 4,335,380, Cl. 340-744.000.
WSF Industries, Inc.: *See—*
Piegza, Henry J., 4,334,633, Cl. 220-332.000.
WSW Planungs-GmbH: *See—*
Stog, Wilhelm, 4,334,963, Cl. 202-263.000.
Wu, Hsin-Chih, to Standard Oil Company. Process for recovery of olefinic nitriles. 4,334,965, Cl. 203-25.000.
Xelavis S.A.: *See—*
Barozzi, Gian P.; and Horeschi, Giancarlo, 4,334,791, Cl. 400-166.000.
Xerox Corporation: *See—*
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Lehman, Richard F., 4,334,767, Cl. 355-68.000.
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Parker, Delmer G., 4,335,159, Cl. 427-14.100.
Seachman, Ned J., 4,335,305, Cl. 250-216.000.
Streifer, William; Scifres, Donald R.; and Burnham, Robert D., 4,335,461, Cl. 372-45.000.
Xynetics, Inc.: *See—*
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Yacobucci, Paul D.: *See—*
Wilson, John C.; and Yacobucci, Paul D., 4,335,254, Cl. 560-138.000.
Yamada, Haruyoshi, to Kabushiki Kaisha Suwa Seikosha. Gear train mechanism for a timepiece. 4,335,454, Cl. 368-220.000.
Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, to Nihon Senshoku Kikai Kabushiki Kaisha. Method of dyeing treatment for a fabric and apparatus therefor. 4,334,333, Cl. 8-152.000.
Yamada, Mitsuhiko, to Dainippon Screen Seizo Kabushiki Kaisha. Digital color control method and machine. 4,335,398, Cl. 358-80.000.
Yamada, Shinjiro, to Mitsui Kinzoku Kogyo Kabushiki Kaisha. Automobile door locking mechanism. 4,334,704, Cl. 292-216.000.
Yamaguchi, Jutaro: *See—*
Onoda, Takeru; Otake, Masayuki; and Yamaguchi, Jutaro, 4,335,258, Cl. 562-599.000.
Yamaguchi, Takashi: *See—*
Takatori, Kichitaro; Yamaguchi, Takashi; and Nagakura, Masahiko, 4,335,247, Cl. 548-140.000.
Yamaha Hatsudoki Kabushiki Kaisha: *See—*
Sasaki, Hiroshi, 4,334,508, Cl. 123-195.00A.
Yamamoto, Mitsuo: *See—*
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Yamamoto, Takuzo: *See—*
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Yamane, Akio: *See—*
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Yamane, Mikiya: *See—*
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Yamanishi, Toru: *See—*
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Yamanouchi Pharmaceutical Co. Ltd.: *See—*
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Yamashita, Hiroshi: *See—*
Yamada, Kazuo; Yamashita, Hiroshi; Mizutani, Hiroshi; and Sugimura, Mitsuru, 4,334,333, Cl. 8-152.000.
Yamazaki, Takayuki: *See—*
Ushijima, Takashi; Kawasaki, Hajime; Yamazaki, Takayuki; and Iwasa, Yoshio, 4,335,078, Cl. 422-179.000.
Yamazaki, Yoshio: *See—*
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Yan, Tsoung Y., to Mobil Oil Corporation. Upgrading of residual oil. 4,334,976, Cl. 208-8.0LE.
Yanahashi, Sinichi: *See—*
Matsuura, Kazuo; Yamaoka, Noboru; Yanahashi, Sinichi; Usui, Katumi; and Miyoshi, Mituji, 4,335,224, Cl. 525-240.000.
Yano, Shunji: *See—*
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YaSenka, Kathryn H. Canning utensil. 4,334,557, Cl. 141-98.000.
Yates, Paul C., to Du Pont de Nemours, E. I., and Company. High yield, low byproduct α, β-unsaturated aldehydes from olefins. 4,335,264, Cl. 568-479.000.
Yazawa, Hiroshi: *See—*
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Yazawa, Masahide; Yazawa, Hiroshi; Tani, Haruhisa; and Kurihara, Kazuhiko, to Nippon Petrochemicals Co., Ltd.; and Polymer Processing Research Institute, Ltd. Method of manufacturing a reticular web having reinforced selvages. 4,335,070, Cl. 264-555.000.
Yazu, Shuji: *See—*
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Yih, Roy Y.: *See—*
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Yokoo, Hisanori: *See—*
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Yokota, Tadashi; Watanabe, Wataru; and Kondo, Makoto, to Clarion Co., Ltd. Tape pack ejecting mechanism for tape player. 4,335,409, Cl. 360-96.600.
Yokoyama, Minoru: *See—*
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Yonezawa, Toshio: *See—*
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Yoshida, Masaaki: *See—*
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Yoshida, Mitunari: *See—*
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Yoshida, Naruhito: *See—*
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Yoshida, Ryo; Katoh, Haruhiko; Sumida, Seizo; Takemoto, Ichiki; Takahashi, Junya; and Kamoshita, Katsuzo, to Sumitomo Chemical Company, Limited. Urea derivatives, and their production and use. 4,334,912, Cl. 71-94.000.
Yoshida, Tsuyoshi: *See—*
Miki, Nobuaki; Kawamoto, Mutsumi; Amano, Hiroyuki; Hida, Tsuneo; and Yoshida, Tsuyoshi, 4,335,428, Cl. 364-424.000.
Yoshida, Yoshiaki: *See—*
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Yoshiie, Shigeo: *See—*
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Yoshitake, Katsumi: *See*—
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Yoshitomi Pharmaceutical Industries Ltd.: *See*—
Katayama, Sakae; and Umekawa, Osamu, 4,334,957, Cl. 162-161.000.

Yoshizawa, Junji: *See*—
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Yoshizawa, Toshio; Suzuki, Osamu; and Yoshida, Yoshiaki, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Spinning units in an open end spinning machine. 4,334,403, Cl. 57-263.000.

Young, Chauncey: *See*—
Watson, William H.; and Young, Chauncey, 4,334,611, Cl. 206-303.000.

Young, Donald C., to Union Oil Company of California. Slow release soil amendment and micronutrient source. 4,334,906, Cl. 71-33.000.

Young, Ray A.: *See*—
Butler, Kim D.; Young, Ray A.; and Brown, Alfred L., 4,334,615, Cl. 206-447.000.

Youngfleish, Frank C.: *See*—
Scheingold, William S.; and Youngfleish, Frank C., 4,334,727, Cl. 339-17.0CF.

Yuda, Takuo, to Nifco Inc. Plastic retaining-fastening device. 4,334,659, Cl. 248-73.000.

Yuhara, Shunichi; Hasegawa, Naruo; Nakasuji, Takashi; and Aoki, Norichika, to Doryokuro Kakunenryo Kaihatsu Jigyodan. Process for improving decarburization resistance of chrome-molybdenum steel in sodium. 4,334,937, Cl. 148-12.00R.

Yves, Aurelle; Calteau, Jean-Paul; and Roques, Henri, to Agence Nationale de Valorisation de la Recherche (A.N.V.A.R.). Process and device for separation of emulsions by coalescence. 4,335,001, Cl. 210-708.000.

Zabar, Zivan. Cycling firing method for bypass operation of bridge converters. 4,335,424, Cl. 363-54.000.

Zadorozhny, Jury G.: *See*—
Mamadzhanov, Ulmas D.; Bakhir, Vitold M.; Klimenko, Vladimir I.; Zadorozhny, Jury G.; and Alekhin, Stanislav A., 4,334,987, Cl. 209-210.000.

Zahner, Peter: *See*—
Link, Manfred; Puch, Diethelm; Zahner, Peter; and Suc, Karel, 4,334,790, Cl. 400-144.200.

Zaino, Richard J. Press apparatus. 4,334,947, Cl. 156-486.000.

Zajac, Ronald E., to Windings, Inc. Windings using water-soluble wind stabilization segments. 4,334,614, Cl. 206-389.000.

Zaluska, Philip J.: *See*—
Beitchman, Burton D.; and Zaluska, Philip J., 4,335,228, Cl. 525-528.000.

Zamek, Otto S.: *See*—
Olander, Walter K.; and Zamek, Otto S., 4,335,234, Cl. 528-214.000.

Zavislake, Jim. Article holder. 4,334,809, Cl. 408-241.00R.

Zeigler, Theodore R. Collapsible bin structure. 4,334,660, Cl. 248-97.000.

Zeiler, Hans-Joachim: *See*—
Voss, Eckart; Metzger, Karl G.; Zeiler, Hans-Joachim; Petersen, Uwe; and Stadler, Peter, 4,335,114, Cl. 424-180.000.

Zelson, Philip R.: *See*—
Preti, George; Kostelc, James G.; and Zelson, Philip R., 4,334,540, Cl. 128-630.000.

Zenbayashi, Katsuaki; Morinaga, Akio; Hirayama, Masao; and Morita, Akira, to Tokyo Gas Kabushiki Kaisha; and Ashimori Kogyo Kabushiki Kaisha. Method for smoothly evaginating a tubular material under pressure. 4,334,943, Cl. 156-287.000.

Zenith Radio Corporation: *See*—
Amin, Ramesh G.; Hartman, Walter C.; and Husk, Robert V., 4,334,731, Cl. 339-144.00T.
Pittenger, Daniel I., 4,335,272, Cl. 174-68.500.
Srivastava, Gopal K., 4,335,403, Cl. 358-148.000.

Zenk, Robert E., to Minnesota Mining and Manufacturing Company. Transfer tape having adhesive formed from two laninae. 4,335,171, Cl. 428-40.000.

Zeuna-Staerker KG: *See*—
Santiago, Andres; and Santiago, Enrique, 4,335,077, Cl. 422-179.000.

Zhuber-Okrog, Gerhard; Kowolik, Ernst; Alder, Hanspeter; and Mueller, Hans P., to Swiss Aluminium Ltd. Device for the production of solid aluminum chloride. 4,334,898, Cl. 55-269.000.

Ziener, Hermann: *See*—
Muller, Klaus; Maurer, Helmut; Linder, Ernst; Rieger, Franz; Friese, Karl H.; Reber, Harald; Dietz, Hermann; Ziener, Hermann; Esper, Friedrich; and Holfelder, Gerhard, 4,334,974, Cl. 204-195.00S.

Zijlstra, Sjouke: *See*—
Schreiner, Horst; Tusche, Reinhard; and Zijlstra, Sjouke, 4,334,929, Cl. 75-246.000.

Zikopoulos, John N.: *See*—
Robyt, John F.; and Zikopoulos, John N., 4,335,100, Cl. 424-48.000.

Ziller, Henry H. Shipping container for live animals. 4,334,500, Cl. 119-15.000.

Zirnite, Richard N.: *See*—
Beede, Charles H.; and Zirnite, Richard N., 4,335,158, Cl. 427-2.000.

Ziskin, Nathan A.: *See*—
Barker, Patricia I. M.; Ziskin, Nathan A.; and Grossfeld, Michael J., 4,335,103, Cl. 424-59.000.

Zoeke, Siegfried; and Stuerzer, Anton, to Siemens Aktiengesellschaft. Device for controlling evaporation of a liquid. 4,334,955, Cl. 159-44.000.

Zoldi, Jozsef: *See*—
Matyasi, Jozsef; Toth, Ferenc; Revesz, Laszlo; Toth, Benjaminne; Schlegel, Miklos; Zoldi, Jozsef; Losonczi, Janosne; Szoke, Lajos; and Orban nee Kelemen, Maria, 4,335,082, Cl. 423-122.000.

Zorbalas, George S., to RCA Corporation. Rapid correlation of recorded information. 4,335,401, Cl. 358-127.000.

Zuckerman, Joseph L.; and Bzik, John W., to J. P. Stevens & Co., Inc. Thermoplastic compositions and automotive carpeting backed therewith. 4,335,034, Cl. 524-423.000.

Zylkowski, John T.: *See*—
Allen, Ralph A.; Madden, Donald S.; and Zylkowski, John T., 4,334,729, Cl. 339-125.00R.

4P Nicolaus Kempten GmbH: *See*—
Eckert, Eugen, 4,334,875, Cl. 493-303.000.

501 National Research Development Corp.: *See*—
Warner, Noel A., 4,334,918, Cl. 75-21.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 15TH DAY OF JUNE, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Acrison, Inc.: *See*—
Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., Re. 30,967, Cl. 222-58.000.

Bell Telephone Laboratories, Incorporated: *See*—
Zarouni, Alfred, Re. 30,973, Cl. 179-6.30R.

BP Chemicals Limited: *See*—
Hyde, David L.; and Kirkwood, Kenneth C., Re. 30,970, Cl. 252-429.00B.

Braddock, Peter D. M.: *See*—
Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., Re. 30,971, Cl. 260-429.00R.

Buck, Elwood W., Jr., to D G Shelter Products Company. Device for opening, closing and latching a vent closure member. Re. 30,969, Cl. 292-263.000.

Champion Spark Plug Company: *See*—
Grant, Colonel E., Re. 30,968, Cl. 222-111.000.

D G Shelter Products Company: *See*—
Buck, Elwood W., Jr., Re. 30,969, Cl. 292-263.000.

De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., to Minnesota Mining and Manufacturing Company. Production of television signals from photographic disc recordings. Re. 30,974, Cl. 369-44.000.

Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., to Acrison, Inc. Automatically controlled weigh feeding apparatus. Re. 30,967, Cl. 222-58.000.

Grant, Colonel E., to Champion Spark Plug Company. Attachment for paint spray gun systems. Re. 30,968, Cl. 222-111.000.

Gregg, David P.: *See*—
De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., Re. 30,974, Cl. 369-44.000.

Hargens, Alan R.; and Mubarak, Scott J., to University of California, The Regents of the. Wick catheter pressure sensing probe and method of use. Re. 30,966, Cl. 128-748.000.

Hyde, David L.; and Kirkwood, Kenneth C., to BP Chemicals Limited. Polymerization catalyst. Re. 30,970, Cl. 252-429.00B.

Johnson, Wayne R.: *See*—
De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., Re. 30,974, Cl. 369-44.000.

Khokhar, Abdul R.: *See*—
Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., Re. 30,971, Cl. 260-429.00R.

Kirkwood, Kenneth C.: *See*—
Hyde, David L.; and Kirkwood, Kenneth C., Re. 30,970, Cl. 252-429.00B.

Kyle, William; and Lee, Bruce H., to Nicholas Proprietary Limited. Management of incontinence. Re. 30,972, Cl. 428-219.000.

Lee, Bruce H.: *See*—
Kyle, William; and Lee, Bruce H., Re. 30,972, Cl. 428-219.000.

Minnesota Mining and Manufacturing Company: *See*—
De Moss, Dean L.; Gregg, David P.; and Johnson, Wayne R., Re. 30,974, Cl. 369-44.000.

Mubarak, Scott J.: *See*—
Hargens, Alan R.; and Mubarak, Scott J., Re. 30,966, Cl. 128-748.000.

Nicholas Proprietary Limited: *See*—
Kyle, William; and Lee, Bruce H., Re. 30,972, Cl. 428-219.000.

Ricciardi, Ronald J.: *See*—
Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., Re. 30,967, Cl. 222-58.000.

Rustenburg Platinum Mines Limited: *See*—
Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., Re. 30,971, Cl. 260-429.00R.

Tobe, Martin L.; Khokhar, Abdul R.; and Braddock, Peter D. M., to Rustenburg Platinum Mines Limited. Compositions containing platinum. Re. 30,971, Cl. 260-429.00R.

University of California, The Regents of the: *See*—
Hargens, Alan R.; and Mubarak, Scott J., Re. 30,966, Cl. 128-748.000.

Urban, Alexander A.: *See*—
Ferrara, Angelo; Ricciardi, Ronald J.; and Urban, Alexander A., Re. 30,967, Cl. 222-58.000.

Zarouni, Alfred, to Bell Telephone Laboratories, Incorporated. Telephone station coin memory and control system. Re. 30,973, Cl. 179-6.30R.

LIST OF DESIGN PATENTEES

Adams, Herbert L., III: *See*—
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Eisenberg, Laura S., to Yuter, Seymour C. Cigarette lighter. 264,999, 6-15-82, Cl. D27-41.000.
Ender, Alfred R.; and Iacullo, Robert F., to Western Electric Company, Incorporated. Telephone console. 264,967, 6-15-82, Cl. D14-56.000.
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Finlay, Robert L., to BPE, Inc. Fishing reel for mounting on archery bow. 264,988, 6-15-82, Cl. D22-25.000.
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Goldman, Edward J. Calendar holder. 264,979, 6-15-82, Cl. D19-20.000.
Graham, Ellis M. Lamp. 265,001, 6-15-82, Cl. D26-104.000.
Greene, Dorothy R. Eye glass case. 264,976, 6-15-82, Cl. D16-129.000.
Groark, James B., to Seagram United Kingdom Limited. Bottle. 264,937, 6-15-82, Cl. D9-349.000.
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Halder, Marilyn F. Glove box organizer. 264,894, 6-15-82, Cl. D3-40.000.
Hammond, Gene R., to Cole & Mason U.S.A., Ltd. Housing for clock or timer. 264,943, 6-15-82, Cl. D10-1.000.
Hanyu, Susumu, to Janome Sewing Machine Co. Ltd. Sewing machine controller. 264,973, 6-15-82, Cl. D15-72.000.
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Helbig, Rolf W. Clothes hanger holder. 264,904, 6-15-82, Cl. D6-113.000.
Hinshaw, Howard G., to Thermalloy Incorporated. Heat sink or similar article. 264,964, 6-15-82, Cl. D13-23.000.
Hirabayashi, Yoshio, to Kabushiki Kaisha Suwa Seikosha. Watchcase. 264,946, 6-15-82, Cl. D10-38.000.
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Johnson, Frederick M. Stroller. 264,955, 6-15-82, Cl. D12-129.000.
Jones, Dale A. Hammer implement head. 264,931, 6-15-82, Cl. D8-78.000.
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Kilham, Peter. Wood and coal burning stove. 264,990, 6-15-82, Cl. D23-97.000.
Kitson, Gerald L. Wheel assembly for poultry cage-top service vehicle. 264,958, 6-15-82, Cl. D12-204.000.
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Palmer, Gerald C., to Sakon Industries, Inc. Clock. 264,944, 6-15-82, Cl. D10-15.000.

Pennell, Brian. Wristwatch. 264,945, 6-15-82, Cl. D10-32.000.

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Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., to John J. Madison Company, Inc. Figurine of a husky pup. 264,951, 6-15-82, Cl. D11-158.000.

Santa-Eulalia Carbajales, Jesus A.; and Santa-Eulalia Carbajales, Javier B., to John J. Madison Company, Inc. Figurine of a seal. 264,952, 6-15-82, Cl. D11-158.000.

Schieser, Warren J.; and Duffey, Craig L., to Liqui-Box Corporation. Bottle. 264,942, 6-15-82, Cl. D9-401.000.

Schinella, John R.; and Adams, Herbert L., III. Center hub for a steering wheel. 264,957, 6-15-82, Cl. D12-176.000.

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Siedschlag, Arnold C. Sculptured ventilating concrete block. 264,996, 6-15-82, Cl. D25-91.000.

Siedschlag, Arnold C., to Lindsley, Warren F. B., a part interest. Ventilating concrete block. 264,997, 6-15-82, Cl. D25-97.000.

Siedschlag, Arnold C., to Lindsley, Warren F. B., a part interest. Louvered concrete block. 264,998, 6-15-82, Cl. D25-97.000.

Smart, Lucy. Tree ornament. 264,949, 6-15-82, Cl. D11-118.000.

Smith, Morley L., to T. S. Simms & Co. Limited. Paint tray and liner therefor. 264,897, 6-15-82, Cl. D4-38.200.

Solow, George J.; Guttschneider, Jack; and Solow, Peter H. Ring. 264,947, 6-15-82, Cl. D11-36.000.

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Stewart, Dennis T., Jr.; and Corbett, Jerome N. Tie or similar article. 264,892, 6-15-82, Cl. D2-343.000.

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Stock, Hugh J., to Pacer Technology & Resources, Inc. Bottle or the like. 264,939, 6-15-82, Cl. D9-352.000.

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Summers, Don D. Apparatus for cleaning drilling mud and fluids. 264,974, 6-15-82, Cl. D15-199.000.

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Tomy Kogyo Co., Inc.: *See—*
Nuttall, Michael W., 264,980, Cl. D21-2.000.

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Tracy, Gene A.: *See—*
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Krawchuk, Thaddeus; and Opalinski, Christine, 264,948, Cl. D11-96.000.

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Adamson, Gerhard, 264,905, Cl. D6-114.000.

VanDerLinden, Roy E.: *See—*
Miller, Joseph T.; and VanDerLinden, Roy E., 264,932, Cl. D8-315.000.

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Warren, Frank A., to Syracuse China Corporation. Dinner plate or similar article. 264,923, 6-15-82, Cl. D7-35.000.

Wasaki, Masaru: *See*—
Ota, Junpei; Wasaki, Masaru; and Mitsui, Tadashi, 264,959, Cl. D13-4.000.

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Ender, Alfred R.; and Iacullo, Robert F., 264,967, Cl. D14-56.000.

Williams, David P. G., to Syracuse China Corporation. Dinner plate or similar article. 264,918, 6-15-82, Cl. D7-23.000.

Wilson, James H.: *See*—
Haber, Terry M.; Wilson, James H.; and Darrow, Edward E., 264,985, Cl. D21-230.000.

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Palm nee Wohlfahrt, Agneta S.; Wohlfart, Lars; and Wohlfahrt, Thomas, 264,989, Cl. D22-99.000.

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Eisenberg, Laura S., 264,999, Cl. D27-41.000.

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Zeller, Noel E., 265,000, Cl. D26-42.000.

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CLASSIFICATION OF PATENTS

ISSUED JUNE 15, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

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1 4,334,327

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